Kelleher Environmental

TCHC Recycling Room Pilot Project
Continuous Improvement Fund Project #237

Final Report Submitted to:

Toronto Community Housing (TCHC)

December 2012

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Acknowledgement:

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1. Executive Summary

Toronto Community Housing completed a project to increase recycle rates at some of its high-rise buildings. At twenty-five buildings an area within the building was renovated and converted into a recycling room for use by building tenants. The project budget was 500,000 including $187,500 approved funding from Waste Diversion Ontario's Continuous Improvement Fund

Toronto Community Housing is the largest social housing provider in Canada and the second largest in North America. There are about 164,000 low and moderate-income tenants in 58,000 multi-residential unit. Current recycling diversion rates are low and estimated at 10% to 15%.

Monitoring of the weight of recyclables from the buildings was completed before the renovation work began and then on several occasions after the completed on the recycling rooms.

- December, 2010 (the Baseline)
- September, November and December, 2011 (Post implementation)
- February and March, 2012 (Post implementation)

Monitoring data indicate that recycling (weight based) increased 22% to 37% in a number of buildings and 64% to 68% in two buildings; one building noted a 108% increase in recycling; In all pilot buildings, the volume of garbage set outs has decreased since the recycling rooms were opened and the average decrease for all buildings was 25%.

The Recycling Room Pilot Project was an ideal opportunity to measure the impacts of making recycling more convenient to residents of multi-residential buildings.

2. Introduction

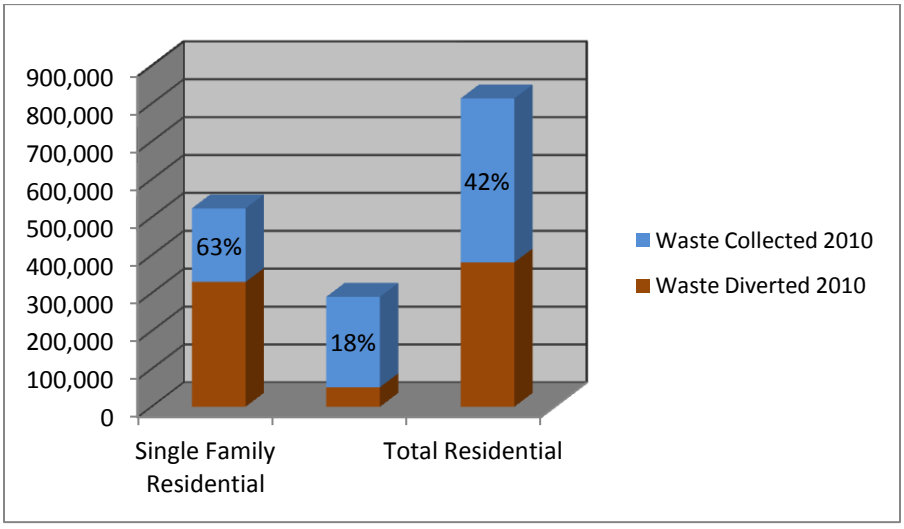
1.1 The Multi-Residential Building Recycling Challenge

Multi-residential buildings generally have lower recycling rates than single family households with curbside service, as recycling is less convenient in multi-residential buildings. Residents in multi-residential buildings are often new to the city or Canada, and are less familiar with the recycling system. Table 1 presents the relative waste diversion and recycling rates for single family households and residential buildings for City of Toronto in 2010. The information is presented in Figure 1.

Table 1: Relative Waste Diversion By Single Family and Multi-Residential Building Households in City of Toronto in 2010

	Garbage	Recyclables	Yard Waste and Organics	Green Bin SSO	Other	Total Diversion	Diversion Rate
Single Family	194,246	112,589	78,347	89,401	48,903	329,240	63%
Multi Residential	238,293	34,647	4,123	3,314	9,566	51,650	18%
All Residential	**432,539**	**147,236**	**82,470**	**92,715**	**58,469**	**380,890**	**47%**

Figure 1: Relative Waste Diversion By Single Family And Multi Residential Households In City of Toronto in 2010



Now that the single family recycling system in Ontario is mature, municipalities are turning their attention to improving recycling in the multi-residential sector. Most new housing developments in large cities are multi-residential buildings, therefore municipalities and building owners need to develop approaches to increase recycling in multi-residential buildings to achieve diversion targets. Considerable effort has been invested by the Continuous Improvement Fund (CIF) and

Ontario municipalities to develop best practices to increase recycling and waste diversion in multi-residential buildings.

The pilot study described in this report was implemented in Toronto Community Housing buildings with support from the Continuous Improvement Fund (CIF).

1.2 Introduction To TCHC Building Portfolio and Objectives

Toronto Community Housing is the largest social housing provider in Canada and the second largest in North America. It is home to about 164,000 low and moderate-income tenants in 58,000 households, including seniors, families, singles, refugees, recent immigrants to Canada and people with special needs.

Toronto Community Housing manages 363 communities comprised of high-rise and low-rise apartment buildings and townhouses throughout the city. The diverse array of buildings and tenant makeup poses many challenges related to waste management, given the diverse background and language skills of many of the building tenants.

1.3 Introduction to Continuous Improvement Fund

The Continuous Improvement Fund (CIF) is a program developed through a partnership among Waste Diversion Ontario (WDO), the Association of Municipalities of Ontario (AMO), the City of Toronto and Stewardship Ontario to provide grants and loans to Ontario municipalities to execute projects that improve the effectiveness and efficiency of municipal blue box recycling. The CIF evolved from the Effectiveness and Efficiency Fund and began operation in January 2008. The partners gave the CIF a three year mandate to assist in the implementation of projects that would:

- identify and implement best practices,
- examine and test emerging technologies,
- employ innovative solutions to increase blue box materials marketed, and
- promote gains in cost-effectiveness that can be implemented province-wide.

As of the end of 2010, CIF has invested $27 million in municipal blue box projects.

In mid-2010, the WDO Board approved additional funding for the CIF resulting in the program partners extending the time frame for the program to the end of 2011 with a requirement that all funding be allocated by June 2013.

A Best Practice report completed for Stewardship Ontario in 2007 identified the importance of increasing recycling in multi-residential buildings as a key requirement for Stewardship Ontario and Ontario municipalities to reach higher overall diversion targets. Since that time, the CIF has had a systematic approach to supporting various initiatives that increase recycling in multi-residential buildings. The CIF expressed an interest in supporting the TCHC recycling room project, because if it is proven successful at increasing recycling at multi-residential buildings,

the same approach could be implemented in multi-residential buildings across Ontario and substantially increase recycling tonnages recovered from the Ontario multi-residential housing sector.

1.4 Background to TCHC Recycling Room Pilot Project

TCHC has a comprehensive recycling program, however, recycling bins and carts are outside of multi-residential buildings in many locations. The inconvenience associated with having to bring recyclables outside, particularly in winter or on cold or wet days, is a significant barrier to maximizing participation in the recycling programs and therefore maximizing recyclables collection from multi-residential buildings in the TCHC portfolio. Current recycling diversion rates are estimated at 10% to 15% at many TCHC buildings.

With the introduction of recycling and, gradually, organics to multi-residential sites, Toronto Community Housing (TCHC) found that many of their existing multi-residential buildings, which have been constructed at various times over the last 60 years (and most were constructed before recycling was considered in building design) did not have a convenient place - outdoors or indoors - where tenants could bring their recyclable materials. The City of Toronto requirement to screen in all waste with an enclosure in a compound area made it even more challenging for tenants to actually find recycling bins in many multi-family buildings.

Finding a suitable space to handle the required size of the garbage area enclosures often meant that the enclosures had to be placed far away from the buildings. In some cases, suitable locations for enclosures were not directly accessible to tenants. For example, in some cases, enclosures were located behind a building with no pedestrian exits from the rear of the building. This meant that tenants who want to recycle had to travel around the building from the front entrance to the enclosure at the rear. In other cases, enclosures could not be built large enough to provide sufficient room for recycling bins. Therefore, other locations needed to be found for recycling bins. TCHC are committed to increasing recycling for tenants, and are therefore committed to construction projects, where essential, to facilitate convenient recycling.

Since the introduction of the City of Toronto waste levy in summer of 2008, TCHC has had an added interest in maximizing recycling at its multi-residential buildings. The more tenants recycle, the less garbage is set out and the less TCHC is charged by City of Toronto for garbage collection and disposal.

Various studies carried out by Kelleher Environmental for TCHC since 2006 have identified the fact that recycling could be increased substantially in virtually all TCHC multi-residential buildings. In a few buildings where “recycling rooms” were established, thus maximizing convenience to tenants, anecdotally, the amount of recycling was reported to increase significantly. The actual increase in recycling had to be quantified in a more rigorous way before TCHC embarked on a broad recycling room strategy to increase recycling.

For this reason, in 2010 TCHC committed to a program to test the impacts of adding recycling rooms to existing buildings at 25 multi-residential buildings in their portfolio. Current recycling diversion rates were estimated at approximately 10% to 15% at most TCHC multi-residential buildings. The objective of the recycling room project was to measure if this number could be increased to 20% or higher.

The overall funding allocation for the Recycling Room project was $500,000 out of the TCHC 2010 budget. TCHC approached the CIF (Continuous Improvement Fund) to support the project with a financial contribution of $212,500 in April, 2010. The City of Toronto was very supportive of the project, as increasing diversion from multi-residential buildings is critical to the City reaching its 70% diversion goal. The City provided a letter of support for the TCHC recycling room project, and offered their contracted collection trucks to carry out the weight based monitoring of the project, in a letter dated April, 2010. Project funding was finally approved by CIF in September, 2010.

1.5 Development of the Jointly Funded TCHC CIF Recycling Room Project

The TCHC developed a pilot project to test the impacts of recycling rooms on increased recovery of recyclables at 25 buildings. A project budget of $500,000 was set aside by TCHC in 2010. The final cost of the project is significantly more than this amount for reasons outlined in this report. TCHC was encouraged to submit an application for consideration by CIF early in 2010. The application for funding was approved in April, 2010, with final approval received in writing in September, 2010. As a condition of the funding, project staff were asked to develop a monitoring program to measure the impact on recycling tonnage due to the implementation of an indoor recycling room for each building.

The letter from CIF (dated 21st September, 2012) regarding *Continuous Improvement Fund Project Approval, Project 237 (Best Practices) Toronto Multi-Residential Community Housing Recycling Rooms* outlined funding support subject to two requirements:

- Recycling rooms be built at 25 buildings (with funding up to $187,500) and
- Project staff work with CIF staff to develop an acceptable monitoring program which will include baseline and post-implementation weight based data (with funding up to $25,000).

1.6 City of Toronto Support For Recycling Room Project

City of Toronto was very supportive of the TCHC project as TCHC is the largest multi-residential building landlord in the City, which has over 500,000 multi-residential units. TCHC owns and manages 363 multi-family buildings. One critical element of the project involved a request by City of Toronto that weight and volume based monitoring be carried out at the Recycling Room buildings. The weight based monitoring component was negotiated through the City of Toronto multi-residential recycling collection contractor, Miller Waste Systems, and City of Toronto collection contract staff. The volume based monitoring component was carried out on a voluntary basis by TCHC staff superintendants at each of the pilot buildings.

1.7 Project Report Outline

The results of the TCHC Recycling Room Pilot Project are presented in this report in the following sections:

- Section 2 describes the Recycling Room Pilot Study approach;
- Section 3 describes the Recycling Room Pilot Study buildings;
- Section 4 describes the site visits to each building;
- Section 5 describes the weekly monitoring by building superintendants;
- Section 6 presents the results of the weight based monitoring of recycling bins;
- Section 7 presents data on City of Toronto garbage billings for the Recycling Room Pilot Study buildings;
- Section 8 presents the results of two workshops held with building superintendants at the end of the project (in late January and early February, 2012);
- Section 9 presents the Conclusions and Recommendations of the Recycling Room Pilot Study.

Detailed information from the study is presented in the Appendices to this report.

2. Recycling Room Pilot Study Approach

This section provides an overview of the key elements of the study approach.

2.1 Recycling Room Pilot Study Buildings

The 25 TCHC multi-residential buildings initially involved in the Recycling Room Pilot[1] were chosen to represent a cross section of different building and community types that make up the TCHC portfolio. Key building types included:

- Adult buildings (bachelors and 1-bedroom units);
- Senior's Buildings and
- Family Buildings.

The buildings were also chosen to cover the different parts of the city: suburban and urban in north, south, east, west and downtown Toronto.

Locations where the recycling rooms were constructed within each building depended on the building layout and logistics of collecting recyclables. The pilot project located the recycling rooms in underground parking garages, in garbage compactor rooms and in main floor move-in rooms.

[1] Subsequently reduced to 23 buildings as the recycling rooms in two buildings were not opened during the one-year pilot period.

2.2 Recycling System Improvements By TCHC At Recycling Room Pilot Buildings

Superintendants at the buildings involved in the Recycling Room Pilot Study were contacted by the TCHC project manager (Albert Koke) prior to the initiation of the pilot to provide any additional recycling or garbage bins requested, and perform other maintenance related to the recycling or the garbage system.

In some cases equipment such as bin pullers were required, and had to be ordered.

A compactor replacement program was also underway at the same time at many TCHC buildings, primarily because the existing stock was generally very old and not performing efficiently. In buildings where compactors have been replaced, new technology was installed on the compactors, which alerts superintendants to the volume of garbage in the bin being compacted and, most importantly, alerts the superintendants when the bin achieves full compaction. At that point, the bin needs to be removed from the compactor. In the past, staff removed garbage bins from the compactor before weekends because there was no dependable way to tell how compacted a bin was and therefore no way to tell if the bin's remaining capacity would be sufficient to meet garbage disposal requirements through the weekend.

In addition, staff tended to remove bins from compactors on the twice weekly garbage collection days to ensure that they had as much garbage capacity as possible to allow for situations such as move-outs where tenants left a great deal of garbage behind. The new compactor technology allows staff to know how much capacity they have remaining in their garbage bins. In many cases, this allows staff to leave bins on the compactor for a weekend and only remove bins when they are fully compacted as opposed to automatically removing them on garbage collection days. This has allowed staff to place fewer garbage bins out for collection each week in buildings where this technology has been installed. With the City of Toronto garbage levy, this has become a cost savings approach, as each garbage bin set out is charged as if full and fully compacted.

2.3 Monitoring Program

The monitoring program was designed to measure the impacts of the recycling rooms on recycling and also to collect anecdotal information on lessons learned. It involved a number of components, including:

- site visits to each of the 25 buildings which were originally part of the Recycling Room Pilot Study (two buildings were subsequently removed from the study for reasons identified later in the report);
- voluntary reporting of recycling pick-ups of garbage and recycling by building superintendants over a period of one year;
- weight based monitoring of recycling pick-ups on one occasion before the pilot started (the Baseline weighing) and on five occasions during the year following the opening of the recycling rooms;
- a review of City of Toronto garbage billings to the buildings with recycling rooms to see if the amount of garbage picked up during the year after installation of the recycling rooms was reduced and

- two workshops on 31st January and 2nd February, 2012 to elicit building superintendant's opinions on the recycling room project including lessons learned and suggestions on improvements.

2.3.1 Site Visits and Setting Up Weekly Monitoring Program

Kelleher Environmental staff started the voluntary volume based monitoring program in early 2011 (March and April).

Because the Recycling Room Pilot Project buildings were located throughout the City, the project needed to depend on building superintendants to keep a weekly log of recycling and garbage set outs. Each of the buildings participating in the Recycling Room Pilot project was visited by a Kelleher Environmental staff member in March to April 2011 to meet with the building superintendants, measure the volume of recycling bins, confirm the recycling room arrangements, explain the project to the superintendants and elicit their cooperation in filling out weekly log sheets, described elsewhere in the report.

Options presented to the superintendants for returning the weekly log sheets included:

- Filling out a project specific note-book log by hand (a custom designed log book was delivered to each building at the initial site visits);
- Fill in an Excel spreadsheet and email the spreadsheet to Kelleher Environmental;
- Fill out weekly log sheets and fax them to the Kelleher Environmental office or
- Fill out weekly log sheets and send them to TCHC head office by inter-office mail.

2.3.2 Weight Based Monitoring By Miller Waste Systems

Weight based monitoring at the Recycling Room Pilot Study buildings involved considerable co-ordination with Miller Waste Systems, the city contractor which provides bulk lift recycling service to multi-residential buildings, and superintendants at each of the pilot buildings. Each monitoring event involved the following steps over two weeks:

- On the first week of the 2-week weighing process a separate Miller Waste Systems truck collected recyclables from the Recycling Room Pilot Study buildings on the same day (which was not always the typical recycling collection day for all buildings) to ensure that recycling bins were emptied, and that the weight recorded on the subsequent monitoring week was for one week of recyclables.

- On the second week of the weighing schedule, Miller Waste Systems sent a truck with a weigh scales to each of the pilot buildings and recorded the weight of the recyclables collected. This weight represented one full week of recycling.

This process was repeated 6 times:

- December, 2010 (the Baseline)
- September, November and December, 2011
- February and March, 2012

On one occasion (October, 2011), the scales on the truck were not working properly so the building specific weights could not be recorded. A total tonnage from all of the buildings on the special pilot route was recorded.

2.3.3 City Garbage Billings at Recycling Room Pilot Project Buildings

City of Toronto staff were contacted to provide garbage billing data for each of the 25 original recycling room buildings for the period from initiation of the City multi-family levy in July 2008 through the complete year of the pilot program. It was hoped that the garbage billings after recycling room installation would go down over time, indicating that garbage had decreased as recycling increased.

3. 4 Workshops With Building Superintendants

Two workshops were held with building superintendants on 31st January and 2nd February, 2012 to thank them for their cooperation during the project, elicit their input on how the recycling rooms worked, and ask their opinions on how the recycling rooms, and recycling in multi-residential buildings in general could be improved.

Free lunch was provided by Kelleher Environmental as an inducement to encourage maximum participation in the two workshops.

2.5 Project Timeline

Originally all recycling rooms were scheduled to be completed by December 2010. Construction at some sites was delayed for various reasons described throughout the report.

The baseline weight monitoring by Miller Waste Systems was carried out in December 2010 before any of the recycling rooms were opened.

Recycling rooms were opened at different times throughout the one year pilot timeline, as described in later report sections.

Site visits and monitoring started when most of the recycling rooms were opened, in March and early April, 2011.

The project was wrapped up in March 2012.

3. Recycling Room Pilot Project Details

This section describes the buildings where the recycling rooms were located, the schedule for construction and opening of the recycling rooms, costs of the recycling room construction projects and promotion and education approaches used to alert residents to the existence of the new recycling rooms.

3.1 Pilot Recycling Room Buildings

The TCHC multi-residential buildings involved in the Recycling Room Pilot Project were chosen to represent a cross section of different building and community types that make up the TCHC portfolio. Those considerations included:

- Geographical representation across City of Toronto
- Location (Etobicoke to Scarborough, Downtown to North York)
- Number of Units in the building (128 - 389 units)
- Logistics involved in installing a recycling room
- The availability of a practical location for the recycling room
- Logistics of staff moving recycling bins to Front End (FE) truck loading area
- Tenant type in each building: Seniors, Adults and family tenants
- The presence of screened in compound waste areas, which is a City of Toronto requirement, and makes recycling challenging as recycling bins are not visible to tenants.

Table 2 presents a list of the buildings involved in the Recycling Room Pilot Project, with the community and street address, the number of households in each building, the specific location chosen for the Recycling Room and the date on which the recycling room was opened.

Table 2: TCHC Buildings Participating in the Recycling Room Pilot Project

	COMMUNITY	STREET ADDRESS	No. of Units	Type of Building Adult, Seniors, Family)	Recycling Room Location	Date When Recycling Room Opened
1	Glen Stewart Acres	828 Kingston Road (Main & Vic Pk)	147	Seniors	Basement Parking Garage	10th January, 2011
2	West Don Apts.	6250 Bathurst St (Steeles)	389	Seniors	Split off from compactor room	Winter 2011
3	BATHURST PLACE	3036 Bathurst St (Lawrence)	160	Seniors	Underground parking garage	17th January, 2011
4	SHEPPARD PLACE	4455 Bathurst St (Sheppard)	301	Seniors	Sheppard Place	13th January, 2011
5	The Kempford	5430 Yonge Street (Finch)	239	Seniors	Covered parking - bulky items relocated to former spa room	10th January, 2011
6	Tandridge Cres. 2	75 Tandridge (Islington & 401)	221	Family	Main Floor Compactor	Early February, 2011
7	Falstaff	20 Falstaff (Jane & 401)	224	Family	Underground parking garage	Beginning of June, 2011
8	Falstaff	30 Falstaff (Jane & 401)	221	Family	Underground parking garage	May, 2011
9	Falstaff	40 Falstaff (Jane & 401)	224	Family	Underground parking garage	May, 2011
10	Humber Boulevard	121 Humber (Weston & Rogers)	215	Adult/family	Utility room next to compactor room	Feb, 2012
11	Sheppard/Victoria Park	2739 Victoria Park (Sheppard)	203	Adult/family	Underground parking garage	22nd February, 2011
12	Victoria Park/Sheppard	2743 Victoria Park (Sheppard)	201	Adult/family	Underground parking garage	22nd February, 2011
13	KENNEDY/DUNDALK	7 Glamorgan (Kennedy & Ellesmere)	184	Adult/family	Moving Room	Winter 2011
14	McCowan Road	400 McCowan (Eglinton E)	198	Family	Main Floor-Moving Room	Winter 2011
15	Bathurst/Adelaide	575 Adelaide	150	Adult/family	Parking garage	Winter 2011
16	Sherbourne/Shuter	155 Sherbourne	301	Adult	Main floor - behind elevator	8th April, 2011
17	Blake Boultbee	80 Blake (Gerrard & Pape)	189	Family	P1 (room near compactor room)	7th Feb, 2011
18	Blake Boultbee	10 Boultbee (Gerrard & Pape)	166	Family	Parking Garage	7th Feb, 2011
19	JANE/YEWTREE	2999 Jane (Finch)	188	Adult/family	underground parking	May, 2011
20	Roselawn/Marlee	855 Roselawn (Dufferin & Eglinton)	253	Adult	Laundry room/moving room/rec room	10th January, 2011
21	Greenbrae 2	55 Greenbrae Circuit (Lawrence & Markham)	128	Family	Main Floor Moving Room	Initially part of the pilot program but recycling

	COMMUNITY	STREET ADDRESS	No. of Units	Type of Building Adult, Seniors, Family)	Recycling Room Location	Date When Recycling Room Opened
						room was not opened so removed from the project
22	Greenbrae 2	65 Greenbrae Circuit (Lawrence & Markham)	128	Family	Underground parking garage	This building was originally part of the pilot project but the recycling room was not opened and the building was removed from the project
23	Willowdale Manor	175 Cummer Ave (Yonge & Finch)	247	Senior	Main Floor	10th January, 2011
24	Mabelle Place	49 Mabelle (Kipling & Bloor)	128	Family	Moving Room	Mid-January, 2011
25	Broadview Manor	80 Danforth (DVP)	131	Seniors	Main Floor Compactor Room	28th October, 2011

3.2 Recycling Room Locations Within Pilot Buildings

The Recycling Room locations chosen for the pilot project buildings are summarized in Table 3 below. The recycling rooms were located where considered practical on a building by building basis. At the outset of the project it was anticipated that more moving rooms would be converted to recycling rooms. These rooms are generally underutilized (they are used to store furniture, etc being moved in and out of buildings), and have access to the outside for moving vans. However, the logistics at each building were different, and therefore a number of moving rooms could not be converted for practical reasons.

The following locations were chosen:

- 13 recycling rooms were located in underground parking garages;
- 6 recycling rooms were located on the main floor of the building (3 were located near compactor rooms) and
- 4 recycling rooms were located in moving rooms.

Table 3: Recycling Room Locations In Pilot Project Buildings

Recycling Location Type	Number of Recycling Room Pilot Sites
Underground Parking Garage (13)	Glen Stewart Acres Bathurst Place Sheppard Place The Kempford 20 Falstaff 30 Falstaff 40 Falstaff Sheppard/Victoria Park Victoria Park/Sheppard Bathurst/Adelaide Blake/Boultbee (80 Blake) - P1 – near compactor room) Blake/Boultbee (10 Boultbee) Jane/Yewtree
Moving Room (4)	Kennedy/Dundalk McCowan Road (Main floor moving room) Roselawn/Marlee (laundry room, moving room, rec room) Mabelle Place
Main Floor or Compactor Room (6)	Sherbourne/Shuter (behind elevator) Willowdale Manor Broadview Manor (main floor compactor room) West Don Apartments Tandridge Crescent 2 (main floor compactor) Humber Boulevard (utility room next to compactor room)

Most of the buildings in the pilot project were managed by TCHC staff. One building (75 Tandridge Crescent) was managed by an outside property management company on contract to TCHC.

3.3 Schedule for Construction of Recycling Rooms

The original schedule planned for all recycling rooms to be constructed by fall, 2010. This schedule was delayed for various reasons:

- contractor delays including completing deficiencies;
- other site construction jobs interfering with the ability to commence or complete work on recycling rooms. The TCHC “Constructor” rules do not always allow for more than one constructor to work on a large project in a building at the same time;
- equipment issues (i.e. tractor/bin puller repairs/replacements);
- additional work requirements identified once the room was completed (i.e. upgraded ventilation);
- staff schedules – having to delay opening and promoting the rooms due to other pressing concerns.

The dates when Recycling Rooms were actually completed and opened are presented in Table 3. In summary:

- 8 were opened in January, 2011
- 5 were opened in February, 2011

- 1 was opened in April, 2011
- 2 were opened in May, 2011
- 1 was opened in June, 2011
- 1 was opened in October, 2011 and
- 1 was opened in February, 2012
- 4 other were open in the winter of 2011 (January - February)

3.4 Construction Costs

The original budget for construction of the recycling rooms was approximately $15,000 per installation. However, as the construction progressed a number of issues were identified which needed to be addressed and added costs to the project. These included:

- The requirement to install a CCTV camera at each location for security reasons, in compliance with TCHC policy;
- A new DVD recorder was required with each new camera;
- The need for access to the recycling room for people with disabilities to be in compliance with the AODA (Access to Ontarians with Disabilities Act) legislation;
- Automatic door openers were required in all buildings. These were not in the original budget – this is a commitment of TCHC to residents (AODA);
- Door access readers were required in all buildings. This was not in the original budget – this is a commitment of TCHC to residents for safety reasons.
- Windows in recycling room doors for security reasons;
- Painting of recycling rooms and areas around recycling rooms;
- In the case of two locations, the only space suitable for a recycling room was in an existing cleaning room – a new cleaning room had to be developed to replace the room taken over for recycling.

The final cost of each recycling room is presented in Table 4.

Table 4: Construction Costs For TCHC Recycling Rooms

6	COMMUNITY	ADDRESS	Units	Final Construction Cost for Recycling Room
A	Glen Stewart Acres	828 Kingston Road	147	$ 18,600
A	Willowdale Manor	175 Cummer Avenue	247	$23,600.54
A	Broadview Manor	80 Danforth	131	$8,186.85
B	West Don Apts.	6250 Bathurst St	389	$36,771.31
B	BATHURST PLACE	3036 Bathurst St	160	$16,393.65
B	SHEPPARD PLACE	4455 Bathurst St.	301	$39,578.95
B	The Kempford	5430 Yonge Street	239	$57,559.49
C	Tandridge Cres. 2	75 Tandridge	221	$11,331.25
D	Falstaff	20 Falstaff	224	$31,594.80
D	Falstaff	30 Falstaff	221	$22,679.10
D	Falstaff	40 Falstaff	224	$30,250.10
D	JANE/YEWTREE	2999 Jane	188	$26,889.37
E	Humber Boulevard	121 Humber	215	$37,306.95
E	Mabelle Place	49 Mabelle	128	$15,249.35
F	Roselawn/Marlee	855 Roselawn	253	$16,559.61
G	Victoria Park/Sheppard	2739 Victoria Park	203	$26,961.80
G	Victoria Park/Sheppard	2743 Victoria Park	201	$27,854.50
H	KENNEDY/DUNDALK	7 Glamorgan	184	$19,734.32
I	McCowan Road	400 McCowan	198	$21,433.36
I	Greenbrae 2	55 Greenbrae Circuit	128	$26,523.93
I	Greenbrae 2	65 Greenbrae Circuit	128	$20,899.35
J	Bathurst/Adelaide	575 Adelaide	150	$24,800.00
K	Sherbourne/Shuter	155 Sherbourne	301	$19,879.33
L	Blake Boultbee	80 Blake	189	$20,453.80
L	Blake Boultbee	10 Boultbee	166	$35,109.90
	TOTAL			$636,202

3.5 Communication and Education Regarding The Recycling Rooms

The tenants at each building were informed about the recycling rooms through a number of different methods:

- Posters indicating the location of the new recycling room
- Signs in the elevators
- In one case, a meeting in the building lobby

A number of multi-residential housing programs related to recycling and broader environmental issues are already underway in City of Toronto, including:

- TCHC Community Animators program;
- City of Toronto Ambassadors program and
- Tower Renewal Program.

Eight of the buildings in the Recycling Room Pilot Project (listed in Table 5) are participating in the TCHC Community Animation program[2]. The community animators did not have any involvement in promoting the recycling rooms.

Table 5: TCHC Recycling Room Pilot Buildings with TCHC Community Animators

COMMUNITY	ADDRESS
Kennedy/Dundalk	7 Glamorgan (Kennedy & Ellesmere) – not at this address but next door at 6 Glamorgan
Tandridge Cres. 2	75 Tandridge (Islington & 401)
Falstaff	20 Falstaff (Jane & 401)
Falstaff	30 Falstaff (Jane & 401)
Blake Boultbee	10 Boultbee (Gerrard & Pape)
Roselawn/Marlee	855 Roselawn (Dufferin & Eglinton)
Greenbrae 2	65 Greenbrae Circuit (Lawrence & Markham)
McCowan Road	400 McCowan (Eglinton E)

The City of Toronto Solid Waste Department's 3Rs Ambassador Volunteer Program is an education and outreach program, using resident volunteers, to help people living in multi-residential buildings to reduce, reuse and recycle more of their waste. The program started in November 2009. Interested volunteers register for training sessions on how to engage residents in their buildings to increase recycling. None of the buildings in the pilot were participants in 3Rs Ambassador Volunteer Program[3].

Building superintendants commented that it really helped if someone in the building helped to promote the new recycling programs through displays in the building lobby.

[2] Gilda Crawley, the Manager of Community Animation for Community Health Unit for Toronto Community Housing
[3] Charlotte Ueta, the Coordinator for Volunteer Management for Solid Waste Management Services, Policy & Planning

4. Site Visits To Recycling Room Pilot Project Buildings

4.1 Purpose of Site Visits

One site visit was made to each of the 25 original buildings in the pilot by Kelleher Environmental staff in March-April 2011. All 25 superintendants were contacted by email by Albert Koke from TCHC in preparation for the site visits

The purpose of the initial site visits was to:

- Understand the building layout and the recycling room location;
- Establish the size of recycling bins;
- Discuss the requirement for the building superintendant to keep track of recycling and garbage set outs as part of the project and
- Establish the preferred method for the building superintendant to report set outs to Kelleher Environmental.

4.2 Observations and Comments During Site Visits

A number of concerns and comments were expressed by individual building superintendants during the site visits by Kelleher Environmental staff in March and April, 2011. These included:

Recycling Room Construction Issues

- Recycling Rooms were not finished and not ready to open. As of early April 2011, 15 rooms were still not opened because of the need for various un-anticipated additions to the original project scope which became evident during construction.
- Construction Issues – drains and plumbing work were needed at a number of recycling rooms.
- Security cameras were required in all recycling rooms in case of emergencies, lack of a working camera caused delays in opening some rooms.
- Door card access readers were required on some recycling rooms.

Safety Issues

- Steps up to the door of the recycling room were a concern for seniors getting into the room carrying recyclables. The superintendant in one room left a small recycling bin in the corner by the door for those tenants who could not get up the step.
- Safety concerns were raised regarding staff moving heavy bins in and out of basements and underground garages
- Safety fears related to the potential of fires being started in indoor recycling bins
- By code, all rooms required sprinklers – these were already in place in all of the

recycling room locations.

Tenant Issues

- Tenant participation or lack thereof was raised as an issue in the early site visits one super commented that tenants think it's not their job to do the recycling
- Lack of recycling volunteers and community animators to help promote the new recycling rooms.
- Tenants putting recyclables on the floor of the recycling rooms. The super in one building noted that he had to pick it up or sort through recyclables left on the floor of the recycling rooms. Tenants may be doing this due to a lack of recycling knowledge and they do not want to guess, the bin top is too high or the recycling bin is too full.
- Need proper signage on rooms, chute doors and bins
- Recycling in certain buildings is more challenging due to vandalism and other criminal activates.
- Supers indicated during the March/April, 2011 site visits that some types of TCHC buildings are just not going to recycle based on tenant's attitudes and interest.
- One staff person estimated that 5% of the tenants in her building recycle now. She gets much resistance from them. They ask her what the purpose of recycling is. They believe money would be best spent on other things rather than a recycling room. This was a comment from a contract managed building which may not have had the same commitment to recycling and tenant education.

Promotion and Education Issues

- Except for posters, recycling literature and recycling bags supplied to all buildings for the purpose of this pilot, Superintendants lack support to implement a recycling push in their building.
- Need for additional promotional material and posters with different messages (i.e. asking tenants to not leave non-recycling materials in the rooms such as furniture). One Super said "Posters? Do you have anything that says: "Excuse me..."It's a recycling room People!!!!! "
- Supers were supplied with large numbers of posters and recycling literature at the beginning of the project before the recycling rooms were opened. They were encouraged to order more posters and literature from Albert Koke, the TCHC coordinator when required. However, during the site visits, superintendants asked for more recycling literature for tenants
- Some supers may not have distributed materials and bags.

Superintendant Issues

- Bin Size volume- most superintendants did not know the actual size (by volume, e.g. 3, 4 or 6 cu yd) of their bins

- Superintendants commented that a tractor or bin puller was needed for moving heavy bins from underground
- A lot of contamination was noted in the recycling bin inside. This may be less than for bins outside, as it is easier for people to participate in recycling inside, so possibly less diligent recyclers use the system (and are confused about what goes in the recycling bin). This created a lot of work for staff to separate out garbage from recyclables in the recycling bin. The recycling truck will not pick up the recycling bin if it looks very contaminated.
- One superintendant was not pleased about having more work (such as filling out the monitoring sheets weekly and sending them in) to his duties.
- In some buildings the recycling bins were being filled completely (not sufficient capacity to handle all the recyclables) and many superintendants noted that they need bigger recycling bins or more recycling bins. They also commented that this will create more work for them and increased recycling or bigger recycling bins will result in heavier bins for them to handle.
- Wheel locks are required for bins that are towed. The wheels on the bins turn if they do not have locks thus they cannot be towed from the basement outside for pick up.
- Some superintendants noted health concerns – there were odours from indoor recycling bins, even though in theory there should not be odours if all containers were rinsed out.
- Superintendants commented that there is a need for an odour control ventilation for the recycling rooms. Even though in theory the recycling bins should not cause odours, they do. The ventilation system needs to be of adequate size to move the air.
- In the underground garage recycling rooms and areas, the height of the ceiling is an issue sometimes. The exposed pipes, sprinkler system and HVAC hang too low, and the lids of the recycling bins cannot be kept open (an issue raised during the superintendant workshops later in the project).
- Recycling bin lids need to be kept open so that tenants can put recyclables in at the top of the recycling bin. Bin lids are prone to hit these pipes if propped open.
- At some locations, superintendants commented that it was difficult to separate garbage bins and recycling bins from high rise tenants and townhouse tenants when they share the same waste management system and areas. This was an issue during the weight based and volume based monitoring period, when measurement of recyclables from particular buildings was required.
- At one location the superintendant noted that the large 6 cubic yard recycling bin is difficult and awkward to move. It cannot be completely filled and the opening is too high for some tenants (this issue was raised frequently at the superintendant workshops in January and February, 2012). The superintendant commented that it is best suited for outdoors (where he does not have to move it back and forth).

Detailed notes from onsite visits to each building during the full month of March 2011 and some follow up in early April, 2011 are presented in Appendix A to this report.

5. Weekly Monitoring By Building Superintendants

5.1 Setting Up Weekly Monitoring (Voluntary Reporting) By Building Superintendants

Because the 25 original pilot buildings were located throughout the city, the only practical way to collect one year's worth of continuous data on recycling set outs (and garbage set outs if possible) was to elicit the cooperation of building superintendants.

During the initial site visits in March and April, 2011 (described in Section 4) each building superintendant was given a weekly log book specific to their building. The log book included a weekly data monitoring sheet which the superintendant was asked to fill in with the weekly recycling and garbage data for the pilot building. This sheet was to be kept for one year and filled in weekly.

At each site visit the Superintendants were shown how to enter the weekly data in the log record:

- For each recycling set out each week (one per week), superintendants were asked to record how many bins were set out, the size of each bin (in cubic yards) and how full each bin was (in percentage or by thirds or quarters fullness e.g. three quarters full);
- For each garbage set out (two per week) each week, superintendants were asked to record how many garbage bins were set out, the size of the bins, and how full the bins were when set out.

If the superintendants did not know the size of the bins, they were asked measure the bin dimensions on-site. Standard bin size charts were provided at the initial site visits, so that the superintendants could read the bin volume when the dimensions had been measured. Most recycling bins in the pilot ranged from 3 to 4 cubic yards, with a few 6 cubic yard recycling bins.

Every three months, superintendants were asked to submit the collected information to Kelleher Environmental staff for further analysis. It was a challenge to get responses from a number of buildings, so that email requests were followed up by phone calls to the 25 superintendants to remind them to submit the data as agreed at the site visits.

An updated new blank log sheet was sent to each superintendant by email every three months. The superintendant entered the bin volumes, bin size and fullness each week in the appropriate table cells. A sample blank sheet is shown in Appendix B.

When superintendants were replaced by new superintendants for any building in the pilot, the challenge was to know if the new superintendant was informed of the pilot and their required involvement. Superintendants changed at a number of the pilot buildings during the one year pilot, as TCHC underwent a number of re-organization processes during that time.

When the Kelleher Environmental team discovered any staffing changes through the year, they contacted the new superintendants to see if they had been informed about the pilot and the need to maintain weekly set out records.

Superintendants were given three options in how to submit their completed weekly logs: fax, email or mail by interoffice mail. Only one building superintendant used inter-office mail. Most chose to fax the information to the Kelleher Environmental office, and three building superintendants chose to email the data. The information from each faxed submission had to be retyped into Excel spreadsheets, which was time consuming

Buildings that did not submit monitoring log sheets were reminded by email by Kelleher Environmental to do so in July, August and September 2011. The TCHC Project Manager, Albert Koke also reinforced these requests. In the end, some buildings did not submit any monitoring logs sheets. There was some lag due to superintendants being on vacation or recycling rooms still not open during summer, 2011.

A few buildings were vigilant about submitting reports and did so regularly by email and electronic files. Ideally this would be a preferred method of reporting and keeping records, as data can be imported or copied directly to Excel files, however not all superintendants are comfortable using electronic reporting methods. One of the challenging issues was that new superintendants were assigned to the buildings during the pilot project, and were not aware of the project when contacted. This lack of continuity was a challenge for some of the data collection.

5.2 Results of Weekly Monitoring Data from Building Superintendants

Results of the reported weekly volumes of recycling and garbage by pilot study building are presented in Appendix C and are summarized in Table 6.

The weekly reported garbage and recycling set outs were converted to cu yds per unit per year, to be able to compare information from different buildings on an “apples to apples” basis.

Table 6: Summary of Weekly Monitoring of Garbage and Recycling Set Outs At Pilot Buildings

BUILDING ADDRESS	Date Recycling Room Opened	Baseline Data (Cu yds per unit per yr)		Number of Weeks of Data and Time Period	Post Recycling Room (Cu yds per unit per yr)		Comments
		Garbage	Recycling		Garbage	Recycling	
828 Kingston Road (Main & Vic Pk)	January 10th, 2011	N/A	N/A	15 (May-Oct 11)	2.1	2.0	
				14 (Oct 11-Mar12)	1.4	2.1	Recycling up, garbage down
6250 Bathurst St (Steeles)	Mar 8, 2011	N/A	N/A	13 (Mar-May 11)	1.5	1.4	
				28 Sept 11-Mar 12)	1.4	1.2	Garbage down
3036 Bathurst St (Lawrence)	January 17th 2011	N/A	N/A	28 (Sept 11 - Mar 12)	3.1	2.6	
4455 Bathurst St (Sheppard)	January 13th 2011	N/A	N/A	11 (Mar - May 11)	1.3	1.2	
				28 (Sep-Mar 2012)	1.1	1.4	Recycling up, garbage down
75 Tandridge (Islington & 401)	February 2011	N/A	N/A		N/A	N/A	Contract Managed Building
30 Falstaff (Jane & 401)	April 2011	2.8[4]	1.9[5]	5	2.8[6]	1.9[7]	
20 Falstaff (Jane & 401)	open	No Data	No Data		No Data	No Data	
40 Falstaff (Jane & 401)	08-Apr-11	No Data	No Data		No Data	No Data	
121 Humber (Weston & Rogers)	Feb 9, 2012	8.2 (18 wks of data Mar - Aug 2011)	1.5 (18 wks of data Mar -Aug 2011)	6 (Feb -Mar 2012)	6.9	4.0	Recycling up from baseline, garbage down
				4 (Jan 2012)	8.9	2.0	Recycling up, garbage also up
2739 Victoria Park (Sheppard)	Feb-11	N/A	N/A	12 (Mar-May 2011)	3.1	2.6	
				10 (Jan-Mar 2012)	3.1	2.6	

[4] 6 weeks of data: March-Apr 2011 - Same data reported every week
[5] 6 weeks of data: March-Apr 2011 - Same data reported every week
[6] 5 weeks of data: March-Apr 2011 - Same data reported every week
[7] 5 weeks of data: March-Apr 2011 - Same data reported every week

BUILDING ADDRESS	Date Recycling Room Opened	Baseline Data (Cu yds per unit per yr)		Number of Weeks of Data and Time Period	Post Recycling Room (Cu yds per unit per yr)		Comments
		Garbage	Recycling		Garbage	Recycling	
2743 Victoria Park (Sheppard)	Feb-11	N/A	N/A	12 (Mar-May 2011)	3.1	2.6 (10 wks: Jan-Mar 2012)	
				10 (Jan-Mar 2012)	3.1	2.6	
7 Glamorgan (Kennedy & Ellesmere)	Opened Feb/Mar 2011 Tim Biron Guess	N/A	N/A	9 (Mar-May 2011)	4.2	2.3	
				27 (Sep 2011 - Mar 2012)	4.4	4.1	Recycling up, garbage up
400 McCowan (Eglinton E)	January 7th 2011	N/A	N/A	25 (Sep 2011- Mar 2012)	3.7	2.6	
575 Adelaide	Jan 5, 2012 (but open briefly mid year)	N/A	N/A	No garbage reported	N/A	2.3 (7 wks Jan -Feb 2012)	
155 Sherbourne	Oct-11	N/A	N/A	No garbage reported	N/A	1.4 (10 wks: Jan-Mar 2012)	
80 Blake (Gerrard & Pape)	Feb-11	N/A	N/A	10 (Mar-May 2011)	3.2	1.6	
10 Boultbee (Gerrard & Pape)	Feb. 7th, 2011	N/A	N/A		N/A none reported	9.5 (8 wks Mar-May 2011)	Data probably included the townhouses (7 to 9 bins a week)
855 Roselawn (Dufferin & Eglinton)	Early February 2011	N/A	N/A	11 (Mar to May 2011)	1.2	1.5	
				21 (Sept 2011 to Jan 2012)	1.3	1.2	Recycling down, garbage up
175 Cummer Ave (Yonge & Finch)	January 10th, 2011	N/A	N/A	11 (March to May 2011)	1.3	1.5	
				28 (Sept 2011 to Mar 2012)	1.8	1.5	Recycling same, garbage up
5430 Yonge Street (Finch)	Jan 10th, 2011	N/A	N/A	11 (Mar -May 2011	1.9	1.6	
				28 (Sept 2011 to March 2012	0.8	1.7	Recycling up, garbage down
49 Mabelle (Kipling & Bloor)	Mid January 2011	No Data Reported	No Data Reported		No Data Reported	No Data Reported	

BUILDING ADDRESS	Date Recycling Room Opened	Baseline Data (Cu yds per unit per yr)		Number of Weeks of Data and Time Period	Post Recycling Room (Cu yds per unit per yr)		Comments
		Garbage	Recycling		Garbage	Recycling	
80 Danforth (DVP)	Oct 28, 2011	2.4 (7 wks Apr to May 2011)	1.2 (7 wks Apr to May 2011)	11 (Jan to March, 2012)	2.2	1.2	
2999 Jane (Finch)	Pre March 2011	N/A	N/A		No Data Reported	3.3 (1 wk: May 2011)	

5.3 Discussion Of Results From Voluntary Monitoring of Garbage and Recycling Bins

The information presented in Table 6 and in more detail in Appendix C shows that reporting of data on weekly garbage and recycling bin set outs at the pilot buildings was somewhat erratic. Some of this was related to superintendants forgetting that weekly monitoring was required. In a number of cases, the building superintendants were moved around during the pilot period due to a re-organization at TCHC and it took some time before the new superintendant was aware of the pilot project. Usually the reminder from Kelleher Environmental to submit log sheets was the first they had heard of the project.

For most buildings, baseline data was not recorded before the recycling rooms were opened, so data is only available for the period after the recycling rooms were opened.

For many buildings, data are available for some 3-month periods, or part of one period, and not for others. In other cases, recycling bin set outs were recorded, but not garbage bin set outs.

From the data available, a number of buildings recorded set outs that indicated that recycling volumes were up, and garbage set outs were reduced as time went by after the opening of the recycling room. These cases are noted in Table 7.

Table 7: Buildings Where Voluntary Volume Reporting Noted Changes In Recycling And Garbage Set Outs

Address	Change in Recycling Set Outs By Volume	Change In Garbage Set Outs By Volume
825 Kingston Road (Main and Victoria Park)	+5%	-33%
6250 Bathurst St	-14%	+7%
4455 Bathurst St	+17%	-16%
121 Humber (Weston and Rogers)	+167%	-16%
7 Glamorgan (Kennedy and Ellesmere)	+78%	+5%
5430 Yonge St	+6%	-58%

Given the limited number of buildings where data was recorded for a long period of time, the staff changeovers and other factors, the results of the voluntary reporting are considered of

limited value. However, these results were collected at the request of the City of Toronto.

In some cases the log sheets submitted to Kelleher Environmental seemed to have been filled in for three months in one day, indicating that the results were not reliable.

Our conclusion is that it is virtually impossible to get superintendants the commit to recording data voluntarily for a period as long as one year, particularly when the data involved is not part of their core job function. Kelleher Environmental has previously suggested to TCHC that recycling performance and garbage billings by building should be included in job evaluations for superintendants, as this would change attitudes towards increasing recycling.

It was concluded that workshops like those held at the end of the project should be held at the beginning of the project, to explain the purpose of the project, and create interest in the project.

Additional workshops should be held every three months to maintain interest in the project and share results. Preliminary results of the project were presented to building superintendants who attended the two workshops in late January and early February, 2012, and elicited a great level of interest in how one building was doing compared to another.

A higher degree of success might be achieved by creating some type of “challenge” between buildings where superintendants were highly motivated to keep track of recycling set outs.

A shorter monitoring period might have elicited more consistent reporting of set outs.

6. Weight Based Monitoring of Recycling Bins

6.1 Approach to Weight Based Monitoring

As part of the CIF grant to build the recycling rooms, TCHC agreed to weigh recycling collection at each building before the recycling rooms were opened, and at least one month after the recycling rooms were opened, to determine if there was any improvement in recycling rates. The City of Toronto volunteered to work with their contractor Miller Waste Systems to organize the logistics of the weight based monitoring as part of their support for the project. TCHC paid Miller Waste Systems an additional fee for each weighing, as it involved a trip with an extra truck on the first week, and swopping out a regular truck with a truck which had on-board scales for the second week.

Weight based monitoring at the Recycling Room Pilot Study buildings involved considerable co-ordination with Miller Waste Systems, the city contractor which provides bulk lift recycling service to multi-family buildings, and superintendants at each of the pilot buildings. Each monitoring event involved the following steps over two weeks:

- The first week of the 2-week weighing process a separate Miller Waste Systems truck collected recyclables from the Recycling Room Pilot Study buildings on the same day (which may not be the typical recycling collection day for all buildings) to ensure that recycling bins were emptied, and that the weight recorded on the subsequent monitoring week was for one week of recyclables.

- On the second week of the weighing schedule, Miller Waste Systems sent a truck with a weigh scales to each of the pilot buildings and recorded the weight of the recyclables collected. This weight represented one full week of recycling.

6.2 Results of Weight Based Monitoring Program

Weight based monitoring took place six times during the pilot. Each monitoring event took place for two weeks during the middle of the month. Dates were chosen to avoid holidays or special events if possible. The dates when weight based monitoring took place were:

- Baseline in December, 2010
- September, November and December, 2011
- February and March, 2012

Weight based data in some cases is open to interpretation as bins were not set out in time for the Miller Waste Systems collection or bins were shared among a number of different buildings and the contribution from the pilot building has to be assumed.

The weight of recyclables reported was divided by the number of units in each building to convert the weight data to kg/unit/year of recycling. Results of the weight based monitoring are presented in Table 8. Areas which are blacked out in the table represent situations where the

collected data could not be used for a variety of reasons:

- No weights were recorded as the bins had not been set out on time for collection and weighing by the Miller Waste Systems truck;
- Bins were locked and the Miller Waste Systems crew could not empty them;
- Bins were shared among a number of buildings and the contribution from the pilot building could not be identified (155 Sherbourne and 80 Blake);
- A Miller truck attempted the second special recycling weighing route in late April which was rescheduled for the first week of May 2011. The weigh scales on the truck failed to work and there was no weight data collected that day for the individual buildings. All the recyclables from the 25 buildings were recorded as a combined weight and thus no individual building weights were available. Miller did not have a spare truck with scales available on that day.
- The data is not clear for 155 Sherbourne since it shares so many bins with other buildings on its property. It was stressed to staff that 155 Sherbourne should clearly mark its recycling bins for this pilot or else the data is not useful. The driver must be able to identify which bin in the waste management corral belongs to 155 Sherbourne. For the September, 2011 weighing, the truck weighted seven recycling bins for 155 Sherbourne (275 Shuter location). At the site visit in March, 2011 they had one bin outside and one bin in the recycling room. Clearly the building does not produce seven bins recyclables in one week. This challenge could not be resolved during the pilot therefore the data were not used for any analysis.
- Some properties such as 80 Blake with 10 Boultbee share garbage compounds with other buildings and there may be additional bins that were weighed that belong to other buildings, whereas the weight is divided by the units in these buildings to calculate a kg/unit/year. For this reason, data for 155 Sherbourne and 80 Blake are removed from the Table 8.

In a few cases, the recycling rooms were not opened until late in the pilot schedule, therefore most of the information was “baseline”, i.e. before recycling rooms were opened. These buildings are shown at the top of the Table 8, with information before the recycling rooms were opened in the top section and information after recycling rooms were opened in the lower part of the table.

Some data which are not considered reliable are shown marked in yellow (low values) and green (high baseline values). Details of the data considered unreliable include:

- Baseline data for 30 Falstaff is considered unusually low at 12kg/unit/year. Unfortunately because there is no reliable baseline information for this building, the improvement in recycling for this building cannot be calculated;
- Weight data for 4455 Bathurst, 828 Kingston Road and 5430 Yonge for September, 2011 are not considered reliable as the values are much lower than all other weight based data, including the baseline;
- Weight data for 20 Falstaff for February and March, 2011 are much lower than other data.;
- Weight data for 2999 Jane for February, 2012 is much lower than for all other months including the baseline.

Table 8: Weight Based Monitoring Results For Recycling Room Pilot Buildings (kg/unit/year)

Weighing Number	#1	#2	#3	#4	#5	#6	Avg Sep11	% inc	Excl
Address	Dec-10	Sep-11	Nov-11	Dec-11	Feb-12	Mar-12	To Mar 12	From Baseline	Anomolies
Not Opened									
121 Humber Blvd	34	63	58	48	39				
575 Adelaide	87	87	111	90					
80 Danforth Ave	71	44							
Opened									
121 Humber Blvd						99	**99**		
575 Adelaide					97	76	**87**		
80 Danforth Ave			71	87	64	44	**66**		
6250 Bathurst	49	67	57				**62**	26%	
400 McCowan	139	163	95	113	97	139	**121**	-13%	
7 Glamorgan Av	51	45	65	105	62	71	**70**	37%	
2743 Victoria Park	75	101	80	96	101	122	**100**	33%	
2739 Victoria Park	87	87	64	67	49	108	**75**	-14%	
3036 Bathurst	46	65	78	65	91	75	**75**	64%	
4455 Bathurst	95	38	84	105	85	88	**80**	-16%	90 (-5%)
828 Kingston Rd	81	28	149	131	64	124	**99**	22%	122 (51%)
5430 Yonge	46	35	98	87	81	83	**77**	68%	87 (90%)
75 Tandridge Cres	78		96	101	82	104	**96**	23%	
20 Falstaff Av	100	125	74	172	49	53	**95**	-5%	124 (24%)
30 Falstaff Av	12	68	101	75	54	151	**90**	n/a	
40 Falstaff Av	53	58	98	149	128	123	**111**	108%	
2999 Jane St	100	89	163	36	50	91	**86**	-14%	98 (-5%)
855 Roselawn Ave	43	51	37	62	33	43	**45**	5%	
175 Cummer Ave	57	53	91	93	67	80	**77**	35%	
10 Boultbee		135	172	113	219	110	**150**		
49 Mabelle Ave	*170.6*	*36.6*							
275 Shuter (155 Sherborne)									
80 Blake St.							**AVG**		
AVG Recyc Rm Opened	75	75	93	97	82	94	**88**	17%	
AVG Recyc Rm Not Opened	**64**	**64**	**84**	**69**	**39**	**N/A**			
Difference	**N/A**	**11**	**8**	**28**	**43**	**N/A**			

Table 8 shows a wide variation in the weights of recyclables collected during the year long pilot project at buildings with recycling rooms in place and at other buildings were the recycling room was not yet opened. Part of the variation is related to issues listed earlier (bins not set out on time and therefore not weight; some weights including other buildings, etc).

Drawing conclusions from the data can only be done on a building by building basis. The data in Table 8 shows the vulnerability of only doing one pre-recycling room weighing, as the analysis depends on a reliable baseline to calculate increases in recycling. In any situation where for some reason the baseline was high, the calculations done from subsequent weight data under states the improvement in recycling.

Notwithstanding all of these limitations, recycling improvements of 22% to 37% were measured at six buildings, with higher values of 64%, 68% and 108% measured at three other buildings.

If the lowest performing building (855 Roselawn) is excluded from the analysis (its rate is 45kg/unit/year), the annual rate, converted to kg/unit/year varies from 62 to 150kg/unit/year in the pilot buildings after the recycling rooms were in place. This is compared to well performing Ontario multi-residential buildings in the next section.

6.3 Comparative Recycling Performance For Multi Residential Buildings In Ontario

Stewardship Ontario carries out extensive waste audits of recycling performance at single family and multi-residential buildings throughout Ontario. Data collected from their studies at 55 multi-residential buildings in five large urban communities is presented in Table 9. These audits were conducted during each season over the course of a year.

Table 9: Weighted Average Information From Waste Audits Conducted at 55 Multi-Family Buildings in Five Ontario Municipalities

Municipality	Number of Buildings Audited	Total Number of Units	Weighted Average Total Generation (kg/unit/yr)	Weighted Average Disposal (kg/unit/yr)	Weighted Average Recycling (without contamination) (kg/unit/yr)	Diversion Rates
Halton	10	958	430	320	110	26%
Hamilton	10	736	509	414	94	19%
Peel	10	1,265	701	616	84	12%
London	10	867	472	377	96	20%
Toronto	15	2,131	602	530	72	12%
Average	**55**	**5,957**	**543**	**451**	**91**	**18%**

The table shows that very large municipalities (such as Toronto and Peel), with large numbers of multi-residential units, very diverse language and cultural groups, as well as large numbers of new Canadians not familiar with municipal recycling practices tend to have lower recycling rates (around 12%), and report recyclables collection at about 72kg/unit/year. The Recycling Room Pilot Buildings had an average baseline recycling rate of 75 kg/unit/year at the beginning of the

pilot in December, 2010. This is about the average for Toronto multi-residential buildings as measured by the Stewardship Ontario study.

Smaller or more homogeneous municipalities such as Halton reported low multi-residential unit garbage disposal rates – this may be related to large numbers of 1-bedroom and low occupancy units, or large numbers of seniors units. They also reported the highest recycling rates at 110kg/unit/year. By the end of the recycling pilot, four of the TCHC recycling room buildings had achieved rates similar to this.

London and Hamilton report relatively high multi-residential diversion rates (19% and 20%), and higher kg/unit/year recycled, at 94 to 96kg/unit/year. Multi-family households represent a smaller percentage of their total population, and may not experience the same challenges noted above for Toronto and Peel.

The average amount of recyclables diverted per household per year varied from about 71kg/hh in Toronto to a high of 110kg/hh in Halton. London had Hamilton had virtually identical values at 94-95kg/hh/year. Peel reported a higher recycling value than Toronto at 84kg/hh/year. Many of the TCHC recycling room pilot project buildings had achieved rates higher than these by the end of the pilot.

6.4 Recycling Rates For Highest Performing Multi-Family Buildings in Ontario

Among the multi-residential buildings which were audited by Stewardship Ontario, nine were identified as high performing buildings. These buildings all had diversion rates of greater than 20%. One of the Toronto buildings was a TCHC seniors building with 300 units, and had a measured diversion rate of 21%. Waste generation is low which is attributed to conservation attitudes and behaviour characteristic of seniors, many of whom grew up in the Depression or the war years. Even though the diversion rate per household is lower than other buildings on a per unit basis (61kg), the diversion rate is high because the waste discarded value is low.

The results are presented in Table 10.

Table 10: Recycling Rates For High Diversion Multi-Residential Buildings in Ontario

	Number of Units	Total Generation (kg/unit/yr)	Disposal (kg/unit/yr)	Recycling (without contamination) (kg/unit/yr)	Diversion Rates
Between 100-200 units					
Halton	132	654	469	185	28%
	107	515	316	199	39%
Hamilton	139	526	383	143	27%
	114	425	265	161	38%
Peel	NONE				
London	147	381	239	142	37%
	127	425	307	118	28%
Toronto	118	463	354	108	23%
Greater than 200 units					
Toronto	300	289	228	61	21%
	269	451	344	107	24%

7. TCHC Garbage Billing From The City of Toronto

7.1 City Garbage Billings Before And After Recycling Rooms Opened

Garbage billing data from City of Toronto was obtained for the pilot buildings to see if the amount of garbage set out by the pilot buildings had decreased after the recycling rooms were opened. Data from the city is reported as cubic yards picked up per building by billing cycle. Because the billing cycle varies the data was converted to cu yds/unit/year to provide a common measure for comparison between different buildings.

Table 11 shows a summary analysis of the city billings data for two billing cycles: pre-recycling room opening and post recycling room openings, and the percent change in volume of garbage picked up. This measure is an indication of whether garbage volumes went down and therefore recycling volume increased due to the presence of an indoor recycling room.

Some factors need to be considered in the analysis:

- The City reports bins as full when picked up, so garbage may be somewhat over-reported.
- 80 Blake St and 10 Boultbee have a shared collection point along with 40-80 Blake St and 10-30 Boultbee. The volumes which are charged to 10 Boultbee's account are for all the buildings;
- 155 Sherbourne St and 275, 285, and 295 Shuter St all share a common collection point. The City is billing these addresses individually by charging each address for their percentage of garbage based on the unit count for each building. The Shuter addresses are included to determine the total volume collected at their common collection point.

Table 11: City Set Outs Before And After Recycling Room Openings (cu yds per unit per year) Taken From City Billings

Address	Units	July 08 to June 09	July 09 to June 10	June 10 to Recycling Room Opening	After Recycling Room Opening
828 Kingston Rd	147	2.0	2.1	2.0	2.0
6250 Bathurst St	389	1.8	2.1	3.9	1.7
3036 Bathurst St	160	3.2	2.1	3.9	3.9
4455 Bathurst St	301	1.3	1.0	1.1	1.0
5430 Yonge St	239	1.9	2.0	2.0	1.3
75 Tandridge Cres	221	4.1	3.7	3.1	2.1
20 Falstaff Ave	224	7.0	4.3	4.8	4.0
30 Falstaff Ave	221	6.9	4.3	4.0	2.9
40 Falstaff Ave	224	5.9	3.6	4.2	3.5
121 Humber Blvd	215	9.6	8.4	6.3	4.9
2739 Victoria Park Ave	203	5.2	3.5	3.6	3.6
2743 Victoria Park Ave	201	5.3	4.1	3.2	3.1
7 Glamorgan Ave	184	5.4	4.3	9.4	4.1
400 McCowan Rd	198	6.5	5.8	5.4	5.2
575 Adelaide St W	150	4.8	6.0	4.2	4.3
155 Sherbourne St	301	4.3	7.2	4.0	2.9
80 Blake St &	355	9.8	9.9	9.6	7.5
10 Boultbee Ave (Until Aug 8/11)					
As of Aug 8/11, 10 Boultbee and 80 Blake have their lifts recorded/billed separately.					
10 Boultbee Ave	166	n/a	n/a	n/a	2.0
2999 Jane St	188	7.8	7.6	3.0	2.8
855 Roselawn Ave	253	3.9	4.9	4.5	1.9
56 Greenbrae Circuit	128	11.2	11.3	5.9	not open
65 Greenbrae Circuit	128	9.8	6.3	5.7	not open
175 Cummer Ave	247	3.0	2.6	1.9	1.9
49 Mabelle Ave	128	12.1	7.2	6.2	5.6
80 Danforth Ave	131	2.3	2.2	2.4	1.2
Average	212	4.3	3.2	4.3	3.2

The table shows that without exception, garbage picked up at buildings with recycling rooms is less than before the recycling rooms were in place. There was a decrease of 25% between the periods before and after the rooms were opened. This is a significant finding for TCHC as considerable money can be saved in garbage bills by increasing recycling. Part of the reason for the decrease in garbage bills is likely the fact that recyclables are bulky, and consume garbage bin volume un-necessarily. When recycling increases, some of the bulky material is removed from the garbage stream and collected in the recycling stream at no cost to TCHC.

8. Superintendant Workshops

Two workshops were held with building superintendants on 31st January and 2nd February, 2012 to thank them for their cooperation during the project, elicit their input on how the recycling rooms worked, and ask their opinions on how the recycling rooms, and recycling in multi-family buildings in general could be improved.

Free lunch was provided by Kelleher Environmental as an inducement to encourage maximum participation in the two workshops.

8.1 Workshop Locations and Attendees

Two workshops were held to provide flexibility for attendees. The workshops were located at the east and west ends of the city to accommodate superintendants based in the east and west ends of the city. Each workshop was held from 11am to 1pm (including the lunch hour), in order not to consume too much of the superintendants time.

The first meeting on 31st January, 2012 was held in the west end of Toronto at 41 Mabelle Avenue. The workshop on 1st February, 2012 was held in the east end of Toronto at 1021 Birchmount.

Attendees represented the following buildings:

31st January, 2012 – 41 Mabelle

- Reuben Komal – 6250 Bathurst - seniors
- Sheldon Davis – 75 Tandridge
- Vince Frangipane – 5430 Yonge - seniors
- Krishna Thapamagar – 155 Sherbourne (was at 291 George, took over from Danny a month ago)
- Tony Venroy – 5430 Yonge
- Helder Pinto – 49 Mabelle
- Cesar Ramirez – 855 Roselawn - family
- Edward Snowdon – 121 Humber
- Dennis – 121 Humber
- Vince Frangipane – 4455 Bathurst – seniors

1st February, 2012- 1021 Birchmount

- David Crouse – 575 Adelaide - family
- Floyd Robinson – 2739 and 2743 Victoria Park – family buildings
- Frank Cortese – 175 Cummer
- Greg Alteza – 3036 Bathurst (seniors building) – recycling room in parking garage, working really well
- Mark Wong – 400 McCowan - recycling room on first floor on way to laundry room
- Nelson Firmeza – 80 Danforth – seniors building
- Mike Raso - 20 Falstaff

- Sheldon Dennis – Greenwin – 75 Tandridge, Queens Plate – no access for tenants at back so used compactor room
- Frank – 175 Cummer (seniors building)

8.2 Workshop Agenda and Discussion Topics

The agenda for each meeting was the same:

1. **Introductions**
2. **Introduction To Recycling Room Project (Albert)**
3. **Monitoring of Project Impacts (Maria)**
4. **Questions for Discussion Focussed on Superintendants:**
    a. Have you been at the building for the whole project, or did you move to the building part way through?
    b. If you moved to the building, did someone explain the Recycling Room project to you?
    c. What do you think worked well in the Recycling Room at your building?
    d. What do you think does not work well?
    e. What could be improved (and how)?
5. **Questions for Discussion Focussed on Tenant Response**
    a. Do your tenants like the Recycling Rooms?
    b. What did you hear from tenants – what are they saying?
    c. Did promotion and education material help?
    d. What else could have been done to engage the tenants?
    e. Did any tenants help with promotion?
6. **Questions Focussed on The Building**
    a. How could recycling be improved at your building?
7. **Other Comments**

8. Next Steps, Wrap Up and Thank You (Albert)

8.3 Introduction to Recycling Room Project

To set the context for the discussions at the workshop, Albert Koke of TCHC briefly re-capped on the background to the Recycling Room Pilot Project:

- A City by-law required enclosures around garbage bins outdoors
- Construction of enclosures at some buildings (a City of Toronto requirement) meant that there was not enough room for existing recycling bins. TCHC is committed to supporting recycling, so locations needed to be found for recycling bins;
- After the first few recycling rooms were constructed, feedback was really positive – tenants really liked them and anecdotally, recycling increased significantly;
- TCHC had to construct the recycling rooms anyway, so this was a great opportunity to study the impacts of the recycling rooms on recycling performance;
- TCHC received partial funding from the Continuous Improvement Fund (CIF);
- Through the City, TCHC arranged special Wednesday pick-up of recycling to weigh the impacts of the recycling rooms;
- Supers were asked to keep track of recycling set outs for a year;
- This information will all be put together in a final study report;
- The purpose of the workshop today is to thank you for your involvement and cooperation throughout the year, and get your feedback on what worked well, what did not work well, what could be improved in the recycling rooms, and also hear your ideas on how to increase recycling in general in TCHC multi-family buildings.

8.3 Feedback from Superintendants

Detailed notes on the discussion at the two workshops are presented in Appendix D to this report. In summary, the points made included:

- Having the recycling bins inside makes a “big time” difference;
- Cameras and good lighting help to make people feel safe when they go to the recycling rooms;
- Ceilings in some recycling rooms are quite low – this presents a problem if you want to keep the lid of the recycling bin open (so residents can put recyclables in at the top);
- Cardboard boxes are a big problem – 8 or 9 cardboard boxes fill the recycling bin, then there is no room for anything else. If there is no room, people leave the recyclables on the floor of the recycling room;
- Residents put big cardboard boxes (e.g. from a mattress) in with the bulky waste and it does not get recycled – supers will often cut up the large cardboard boxes – a solution needs to be found to handling cardboard boxes;
- Lots of posters and information are good – it is amazing what people still do not know about recycling – for instance, what materials should go in the recycling bin;
- Posters and leaflets need to be translated into many different languages – Many TCHC residents speak Russian and Pharsi;
- A slide show about recycling on the LCD screen in the lobby would help to educate residents about recycling;

- Tenant meetings don't happen anymore – they would have been good to alert people to the new recycling room;
- TCHC Animators would be helpful in the building to get the message across;
- Slots in the recycling bins don't work – they are too small and when the bin is filled up to the slot level, the rest of the capacity cannot be used. It is better to open the lid of the recycling bin and let people put recyclables in at the top. A hook on the ceiling and a chain is needed to hold up the lid;
- It is difficult for seniors on walkers to use the recycling bin. One super put an old blue box on the floor and emptied it into the big bin a few times per day.

9. Conclusions and Recommendations

9.1 Conclusions

- Both tenant and superintendant response to the recycling rooms has been very positive;
- Superintendants quoted a "big time improvement" in recycling behavior because recycling rooms are inside the buildings and recycling is convenient;
- Monitoring data indicate that recycling increased 22% to 37% in a number of buildings and 64% to 68% in two buildings; one building noted a 108% increase in recycling;
- The Recycling Room Pilot Project was an ideal opportunity to measure the impacts of making recycling more convenient to residents of multi-residential buildings;
- Construction of the recycling rooms was more complex and more expensive than originally envisaged;
- Construction of the recycling rooms cost $675,000 compared to a budget of $15,000 per recycling room. Some of the construction over-run was related to unique building circumstances (e.g. the need in one building to locate the recycling room in a cleaner's room, therefore a new cleaners room needed to be constructed, all recycling rooms needed CCTV cameras, which required the purchase of new DVD equipment, etc.);
- Some recycling rooms were opened later than scheduled because of unanticipated construction delays;
- In all pilot buildings, the volume of garbage set outs has decreased since the recycling rooms were opened and the average decrease for all buildings was 25%;
- Increased recycling levels could significantly reduce the amount TCHC has to pay the City of Toronto for garbage management (through the City garbage levy) on an annual basis;
- Building superintendants are key to the success of any recycling strategy. It is important to engage supers on an on-going basis in increasing recycling (and therefore reducing garbage costs) at TCHC buildings.

9.2 Recommendations

- CIF should fund on-going field tests to measure the bulk density of recyclables in large bins (e.g. 4 cubic yard). This is a data set which makes a big difference to recyclable tonnage estimates.
- CIF should develop a strategy to handle cardboard boxes in recycling bins. We consistently obtained feedback that boxes fill up bins and leave no room for other recyclables.
- To really test the impact on recycling, garbage should also be weighted. However, weight based tests are resource intensive unless the collection contractor already has truck weigh scales.
- CIF should consider using some of the TCHC buildings with recycling rooms for further research on the potential increase in recycling which is achievable when a recycling room is in place;
    - TCHC should develop a systematic way to reward a community that reduces operational costs for garbage disposal (City billings), by redirecting a percentage of cost savings back to the community for community improvements.

  - A communication strategy should be developed to explain the financial benefits of recycling (reduced garbage bills from the City) to TCHC senior management and building superintendants;
  - Superintendants should be made aware of garbage costs per building, so that they are motivated to reduce costs by improving recycling diversion.
  - A strategy should be developed to increase participation and cooperation in 3Rs Recycling Ambassadors and TCHC Community Animators programs in the buildings where the new recycling rooms have been constructed to encourage recycling.
- TCHC should dedicate a team of at least 2 staff for one year to systematically implementing measures that increase recycling and reduce garbage set outs at their 330 multi-residential buildings. The cost of this staff effort would be paid back many times over by the savings in garbage bills.

Appendices

Appendix A – Comments Collected During March, 2011 Site Visits

Table 12: Comments From March 2011 On-site Visits

Building Address	No. of Units	Super-intendent	Recycling Room Open Date	Comments During Site Visit March, April, 2011 related to Recycling Rooms Project	Comments Regarding Waste Management in General (e.g. Green Bin)
828 Kingston Road (Main & Vic Pk)	147	Debbie Mills (416)676-7337	January 10th, 2011	Requests more of the recycling posters to put up especially by her Superintendants office since tenants come asking her what can be recycled. Kelleher Environmental measured her bins since she did not know the sizes.	For a Senior's building she thought it looked "dirty" in the building.
6250 Bathurst St (Steeles)	389	Reuben Komal (416)896-3520	Opened	Will keep electronic log. Good with computers. And email to me. Send him e-files. Recycling room is successful. Senior tenants are making daily outings to the room. Looked into installing a floor drain under garbage bin to collect runoff from garbage juices, there is no floor drain for garbage room, the current floor drain is now located in recycle room area, due to split of former garbage room. Building staff are having difficulty changing bin from compactor, It took all three site staff to release bars on top of bin and compactor did not indicate it was full. Super was unable to walk for few days, due to herniated discs in his lower back. Opened but needed camera in Recycling room before opening it.	Delivered 2nd and 3rd compactor garbage bins, now have 3 containers as of June, 2011. Needed both a new Odour Control system installed and a bin puller to handle the fully compacted bin to the pickup area, because the new compactor increases the weight of the garbage in the upgraded bins.
3036 Bathurst St (Lawrence)	160	Gregg Alteza Jr. (416) 676-5738	January 17th, 2011	Recycling bins and organics green bin are both located in the basement in the underground parking garage. Super uses a tractor to haul both up to ground level for collection pick up. Height of the ceilings is an issue due to low hanging pipes and sprinkler system. The bin covers hit these pipes when they open and close the lids. They have to use locks on the lids so tenants do not open the lids. The recycling and green bins have a side slot for tenants use to deposit their recyclables and green waste.	Green Bins- not sure if to keep until full or put out weekly even if very empty. Not sure if its costs more, like garbage. Not much room in their outside space for bins to be set out. Space is also shared with the commercial business. Commercial business does not recycle nor separate organics. Not on their waste mgmt bill anyhow.
4455 Bathurst St (Sheppard)	301	Vince Frangipane (416)936-2156	January 13th, 2011 but no camera	Recycling Room in use. Not very big. The former recycling room was closet size and only held Blue Box bins. Was too small.	Seniors building. Good recyclers. Good tenants in general. Do not produce as much waste as other buildings.

Building Address	No. of Units	Super-intendent	Recycling Room Open Date	Comments During Site Visit March, April, 2011 related to Recycling Rooms Project	Comments Regarding Waste Management in General (e.g. Green Bin)
75 Tandridge (Islington & 401)	221	derrick@greenwin.ca Manager (647)869-2369) Contract Mgmt	Early February, 2011	There was a recent changeover of staff in this building. The recycling room is in use. There are 2 chute/hatch doors that tenants use to deposit recyclables into small carts inside the compactor room. A 3rd hatch door is for loose garbage. When the organics program is in place, one hatch door will be for organics. There are paper handwritten signs on the hatch doors; Still was awaiting proper signs on site visit. For now they use recycling carts and empty the carts when full into the larger bins. Are there bins being manufactured for these chute/hatch doors? The standard size bins are too large to fit in this area. Bins were never delivered for the recycling room. There was no signage for the chutes to indicate what is thrown in each chute.	Greenwin contract managed Building. April 12, 2011 met Admin Staff: Nur & Custodian: Justin. Shaun Singh No longer working for TCHC: New super there. Never met him/her. Supervisor Joe Magalhaes (416-989-6179). Says Maureen is the contact. Contact: Greenwin Office 416-741-6667 Contract building – when I call the office to make a site visit appointment they would not give me the name of the superintendant nor any contact info.
30 Falstaff (Jane & 401)	221	Perry Carelli (416)688-8460	Room opened in May 2011	Was busy with electronic systems installation service guys. Brief site visit. Delay in waiting for wheel locks on recycling bins. Cannot tow any bins without wheel locks, else they turn and are impossible to control. In May 2011, just had their new tractor modified so it is now usable in the underground parking. Can finally get to set up and use the recycle room. Delivery of recycle containers was completed late May 2011 and posters are up. The recycle bins do get filled to maximum capacity while outdoors. Hope this will continue while in new recycle room	Recycling bins were located outside at back of building for collection pick up and storage. Tenants used to go out back until recycling room was opened in the underground garage. Garbage is deposited in garbage chutes on each floor of the building.
20 Falstaff (Jane & 401)	224	Mike Raso Cell 416-688-4972	Room opened beginning of June, 2011	New super. No office set up yet. Can get email eventually when fully set up. Recycling room is in the basement. Waiting for wheel locks on bins. Wheels turn if do not have locks thus cannot be towed from basement to be set out for pick up. Had issues with tractor but now resolved. Mike at 20 Falstaff and Perry at 30 Falstaff are organizing all of this themselves. They are just improvising as best they can as there is no organized process in place, such as building animators, tenant reps etc.	There is a new Superintendant for this building. Emailed to him a standard bin size chart by volume.
40 Falstaff (Jane & 401)	224	Tino Mancuso (416)881-0474	Open pre May, 2011	Called to go over log sheet. Wants more recycling literature. AK reminded him 8th April, 2011 that literature was sent out in January. 8th April, 2011 - wheels were completed. Has brought one down in the underground at 40 Falstaff and the 2nd one will be brought down next week due to cleaning of the bulk area. There's a lot of cardboard in there. Super has requested some more literature to post for tenants to use the	This building has much loose litter and garbage surrounding the grounds. Maybe due to Spring snow melt but the other buildings do not have this problem.

Building Address	No. of Units	Super-intendent	Recycling Room Open Date	Comments During Site Visit March, April, 2011 related to Recycling Rooms Project	Comments Regarding Waste Management in General (e.g. Green Bin)
				recycling room in the underground. 8th April, 2011 - Super emailed that the wheel was completed yesterday and one recycling bin is now in the Recycling room and another bin will be next week.	
121 Humber (Weston & Rogers)	215	Edward Snowdon (647)212-6971	Waiting of new bins to arrive. Requested that order be expedited.	Room not ready, ran into problems in renovations. Will be using the cleaners' room as new recycling room. Had to install drain in new room. Turned into major plumbing problem. Major replacement for the building's drainage system.	Has 40 Townhouses associated with this complex. They share the bins. No chutes/compaction for townhouses. Recycling bins outdoors.
2739 Victoria Park (Sheppard)	203	Floyd Robinson (416)936-8046	AK: Waiting on electrical deficiencies to be corrected. HSI. to confirm completion Feb. 22, 2011 at 6 p.m.	Added one more recycling bin, seemed to be filling 3 recycling bins per bldg/week. He had seven but eight was ideal. Whilst bins are out awaiting pick-up, Super will have a bin in each recycling room, otherwise he is picking recycling up off the floor at the end of the pick-up day! Posters? Do you have anything that says: "Excuse me..."It's a recycling room People!!!!! Getting a mixture of beds, clothing, and assorted things, the good news though is that from the Super's vantage point, they're also getting a lot of recycling materials too.	Super not sure of bin sizes. Send chart. Super located at North building. One super looks after both buildings. Same days for pick up. One location for all bins. May have to split garbage bin count by half. Same size buildings, equal no of units. AK: Was waiting on electrical deficiencies to be corrected. H.I.S. Construction Contractor was to confirm completion Feb. 22 , 2011
2743 Victoria Park (Sheppard)	201	Floyd Robinson (416)936-8046	AK: Waiting on electrical deficiencies to be corrected. HSI to confirm completion Feb. 22 at 6 p.m.	One super looks after both buildings 2743 & 2739 Victoria Park.	Located at North building.
7 Glamorgan (Kennedy & Ellesmere)	184	Tim Biron (416) 688-8510	open. AK: Requested update Feb. 18th	Sent bin size chart. Super thinks the 4yd recycling bin would start to take up limited space. 3yd seems to work, and if they get organics down the road, it could get crowded in the recycling room. Danny of HSI removed a six cubic yard recycling bin from this site and replaced with two 3 cubic yard recycling bins with 10 inch slots. The recycling room has been great. One more set of posters would be good. The recycling bins do get filled which indicates they are being used. More tenants use the recycling bins. They had to change the big 6yd for two 3yd bins (did it now for the pilot). It is working well. Most tenants are recycling. There was never a volunteer to introduce the recycling but word of mouth did get out as well as the	The 6yd bin is difficult to move, awkward to handle, cannot be completely filled and the opening is too high for some tenants. It is best suited for outdoors. The staff are moving the bins more than they should. Two bins get filled by Monday/Tuesday then they have to be moved outside to open the lids then moved back in so they can be filled more. They will get filled by Thursday then have to be moved outside and if possible they will bring in the large bin but it can't stay because it is too high and cannot be filled properly, so on Friday the two small bins will be brought back in. If there were two small bins for the large bin then

Building Address	No. of Units	Super-intendent	Recycling Room Open Date	Comments During Site Visit March, April, 2011 related to Recycling Rooms Project	Comments Regarding Waste Management in General (e.g. Green Bin)
				posters helped spread the word.	they could change them once a week and they will be filled to capacity.
400 McCowan (Eglinton E)	198	Mark Wong (416)991-3458	January 7th	Was not pleased about having more work added to his duties, i.e. filling out the monitoring sheet weekly and send it in. Usually his recycling bins are all full for pick-up day. This would imply he needs more recycling bins or larger sizes. Recycling room space may be an issue. The room also acts as a moving room as well.	Townhouses next door have separate bins apart from the high-rise, however all bins are collected on same day. This building was also in the TCHC Compaction Study of 2010.
575 Adelaide	150	David Crouse (416)936-4622	Super says room is in use but Cosmin (Supervisor) says needs a tractor.	Took photos of bins out back. Recycling room not open yet. No more 75g gallon carts out back. Cosmin reports that the recycling room is ready but still not in use. The tractor that pulls the load out from the garage is not safe to be used. Tractor needs expensive tune up. To date (Oct 2011) the recycling is been collected as usual out back. The recycling bins are put out for pick up for the new special weighing dates. Needs a budget to fix the tractor (proper lights, anchorage system, brakes, tires, hydraulic equipment tune up, etc.) (Oct. 2011)	This building was also in the TCHC Compaction Study 2010 and visited by Kelleher Environmental. Different superintendant is there now. Super on vacation when Kelleher Environmental visited two times.
155 Sherbourne	301	Danny Smiles (416)891-9178 Very NEW super. (3 wks at that location)	Opened April 8th 2011 for tenants use.	Told by custodian staff that it would be a fire hazard to bring in recycling bins. Tenants or guests will set boxes/paper on fire. Super has only seen 1 person ever put recyclables in bin. Most recycling comes from the staff. Has not distributed posters or apt bins yet. Does not know who does this job. Does not know what the recycling pamphlets are for or who gets them. Does not have enough. E-waste bins in office and not distributed in building. Super does not know what to do with them. No recycling committee or volunteers/ambassadors here and does not expect any. People kick in the doors and windows here often. Spend much time replacing locks. Drug dealing, prostitution, assaults are common. Not a potential recycling building. Bigger problems to deal with. Repairs complete for floor/outside door entry. Cameras now working. Need to repair door lock/ FAB key entry. Super has no knowledge of the recycling room study. He does not know what to do with literature /posters /bags/bins etc.	This building was also in the TCHC Compaction Study. Remo Lanetta moves bins to corral. Super doesn't know when or how many. Did not know recycling and garbage days. Not involved in the waste management of the building. Recycling room camera issue is resolved. Camera is working in corner of room. Saw the video feed in the Super's office. Was waiting to re-fix a lock on the door. People kick in the doors there often Bigger issues to deal with … you can imagine.

Building Address	No. of Units	Super-intendent	Recycling Room Open Date	Comments During Site Visit March, April, 2011 related to Recycling Rooms Project	Comments Regarding Waste Management in General (e.g. Green Bin)
80 Blake (Gerrard & Pape)	189	Lawrence (Larry) Pedersen (416) 936-4482	Opened by Monday, Feb. 7th, 2011	Did not know bin sizes. Measured 2 bins: G3 = 56" x 70" x 65" = 5.46 cubic yards. Second bin G1 = 45"x 70" x 4 ft = 3.24 cubic yards. The recycling bins are the same sizes as these two bins. Thought that AK called them 3.5 cubic yards; as in the old City owned brown bins.	Four garbage bins were removed due to need for replacement. They never got those four garbage bins back nor replaced. They are short four garbage bins. Waiting long time for them. Wonder if they are getting them back. Their old brown city bins are in bad shape, and they look bad and are an eyesore. Said he could really use new ones. They are the former City owned bins and are many years old. The bldg next door and in this project 10 Boultbee is a duplicate of this building. There are over 400? Townhouses included with80 Blake. They have bins that are place around the property and the custodian collect the bins and move them to the waste pick up compound in front of 80 Blake. Told him that we only want to record the bins for 80 Blake high rise building. The townhouse that face the street and sidewalks should have residential sidewalk pick up like regular row houses and picked up by the city. Currently they have to go to the townhouses and collect the recycling and garbage and bring the bins to the waste pick up compound. Recycling and garbage are both picked up on Thursdays; gets hectic. There are two garbage days.
10 Boultbee (Gerrard & Pape)	166	Keith Ramoutar (416)678-1658 NEW Super.	Opened by Monday, Feb. 7th	Send recycling and garbage bin calculations. Recycling room is in underground garage. No doors. Next door to compactor room. Have 2 blue recycling bins there. Added 2 garbage bins for a temporary time while the compactor doors were being welded. Odor is a problem due to garbage compactor is in same area.	Needs to talk to Albert about bins and fan in garbage room. Fan is much too small to handle that size room. Size is similar to one in a small bathroom. Also the distance for the air duct to carry it outside is very long. Missing 4 garbage bins taken away long ago and not replaced.
855 Roselawn (Dufferin & Eglinton)	253	Cesar Ramirez (416)688-7607	Early February, 2011	He wasn't sure of his bin sizes. He thought (guessed) they were 3 cubic yards. Miller weight says 4 cubic yards for recycling bins. Discussed sheet by phone March 21, 2011	Bins placed for pick up out in the back of the building. Bins there when LA visited.

Building Address	No. of Units	Super-intendent	Recycling Room Open Date	Comments During Site Visit March, April, 2011 related to Recycling Rooms Project	Comments Regarding Waste Management in General (e.g. Green Bin)
175 Cummer Ave (Yonge & Finch)	247	Frank Cortese (416)688-9228	January 10th, 2011	Seniors building, good recyclers. Mid May 2011- to date all is going well. Tenants are bringing recyclables down to the recycling room but 10% are still leaving stuff on the garbage room floors. No posters needed at this time.	n/a
5430 Yonge Street (Finch)	239	Tony Venroy (416)688-9217	Recycling room opened Jan 10th, 2011	Seniors building. There is a 2 step up to the door into the recycling room. Concerned for seniors getting into the room carrying recyclables. Left a small recycling bin in corner by door for those who cannot get up the step. Located in the basement. Has 2 steps up to get into the room. Small space in room. Not room for any more bins.	Not sure if there is room for a green bin in the recycling room if the green bin is the same size as the recycling bins. Only room for 2 recycling bins. Do not have extra recycling bins if more are needed i.e. recycling increases.
49 Mabelle (Kipling & Bloor)	128	Helder Pinto (416)989-0752	Mid January.	A lot of contamination in the recycling bin inside. Creating a lot of work for staff to separate out garbage in the bin. Truck will not pick up the bin if contaminated. Therefore only keeping one bin inside from here on. Fill 3 to 4 bins a week of recyclables.	Bin measured by Kelleher Environmental. Data starting the week of April 12, 2011. Wasn't sure of how to enter data into log sheets. Door card access reader - was waiting on resolved shortly.
80 Danforth (DVP)	131	Ronaldo Samaco, (416)676-6933	Not open yet -	Recycling room on main floor in compactor room. Has hatch facing lobby and new hatch B facing outdoor by entrance. Moved from in to out?? Require new bins made extra small for small space in compactor room with 2 hatches.	Seniors building.
55 Greenbrae Circuit (Lawrence & Markham)	128	Nick Hodoroe. NEW Super just started last week. Cell 416-459-6920. Contract Mgmt Building	Sept 2011 Not open - don't see why not.	Took pix of bins. Recycling room has gap between square hatch access doors and bin. Maybe problem. Measure bins. Keep townhouse bins separate. Measured their Recycling bins. All same size 4 cubic yards new recycling bins and are in good shape. Brand new Super Nick just started days before Kelleher visit. No computer set up. No email. 55 Greenbrae seem to be ready to pen but is not – was concerned about gap/space between the hatch door and the recycling bin (due to wall columns). There are 2 small hatch doors chest high tenants open to throw recyclables into bin in recycling rm.	Office staff administrator Anujah said the tenants here are not going to recycle. Estimated that 5% recycle now. She gets much resistance from them. They ask her what the purpose of recycling is. They believe money blackberry best spent on other things rather than a recycling room. They say that it's not their job to sort and lug recycling garbage. They don't even put their garbage down the garbage chutes. They kick it down the hall and leave the bags bursting open on the floor. Same applies to the other building. People play with and set off the fire alarms, urinate in elevators.

Building Address	No. of Units	Super-intendent	Recycling Room Open Date	Comments During Site Visit March, April, 2011 related to Recycling Rooms Project	Comments Regarding Waste Management in General (e.g. Green Bin)
65 Greenbrae Circuit (Lawrence & Markham)	128	Nick Hodoroe. NEW Super just started. Cell 416-459-6921	Sept 2011 Not open yet - Require TRACTOR to tow bins from underground basement parking garage.	Took pix of bins. Same super as 55 Greenbrae. Same type bldg. Bins out back for now. Need tractor to tow bins from the underground garage in 65 Greenbrae	as above
2999 Jane (Finch)	188	John Van Brunt (416)936-4476	Open as of May 2011	Asked if I could fill in all the sheets info and data for him. Not possible for Kelleher to do this as this is a one year monitoring project and requires the person on site to observe the bins set out.. Kelleher Environmental measured his bins. Was given a bin size chart. Says everything is going smooth. Was awaiting wheel bin locks for towing, issue resolved.	Has extra large sized bins.

Appendix B

Sample Weekly Monitoring Log Sheet

Table 13: Sample Weekly Monitoring Log Sheet

TCHC Weekly Waste Management Data Monitoring by Superintendant											
For Building Address:											
Fax to Lori Andrews (416) 482 - 1964 upon request.											
Wk #	Date Starting Monday Week of	Check if Super's Vacation /time Off /sick	Recycling Bins - Picked Up			Garbage Bins Picked Up (1st Day)			Garbage Bins Picked Up (2nd Day)		
			Bin Sizes cu yd	No of Bins	% Bin is Full	Bin Sizes cu yd	No of Bins	% Bin is Full	Bin Sizes cu yd	No of Bins	% Bin is Full
1	*Week of March 7*										
2	*Week of March 14*										
3	*Week of March 21*										
4	*Week of March 28*										
5	*Week of April 4*										
6	*Week of April 11*										
7	*Week of April 18*										
8	*Week of April 25*										
9	*Week of May 2*										
#	*Week of May 9*										
#	Week of May 16										
#	Week of May 23										
#	Week of May 30										

Appendix C

Results of Weekly Monitoring

Table 14: Detailed Results of Weekly Monitoring Of Recycling and Garbage Set Outs At Pilot Buildings

BUILDING ADDRESS	Date Recycling Room Opened	Baseline Data		Post Recycing Room	
		Garbage	Recycling	Garbage	Recycling
		Cu yds/unit /yr	Cu yds /unit /yr	Cu yds/unit /yr	Cu yds/unit /yr
828 Kingston Road (Main & Vic Pk)	January 10th, 2011	N/A	N/A	2.1 (15 wks: May- Oct 2011)	2.0 (15 wks:, Jul 2011)
				1.4 (16 wks Oct-Mar 2012)	2.1 (16 wks Oct-Mar 2012)
6250 Bathurst St (Steeles)	Mar 8, 2011	N/A	N/A	1.5 (13 wks Mar-May 2011)	1.4 (13 wks Mar-May 2011)
				1.4 (28 wks Sep-Mar 2012)	1.2 (28 wks Sep-Mar 2012)
3036 Bathurst St (Lawrence)	January 17th 2011	N/A	N/A	3.1 (40 wks Sep to Mar 2012)	2.6 (40 wks Sep to Mar 2012)
4455 Bathurst St (Sheppard)	January 13th 2011	N/A	N/A	1.3 (11 wks Mar-May 2011)	1.2 (11 wks Mar-May 2011)
				1.1 (28 wks Sep-Mar 2012)	1.4 (28 wks Sep-Mar 2012)
75 Tandridge (Islington & 401)	February 2011	N/A Contract Managed Building	N/A Contract Managed Building	N/A Contract Managed Building	N/A Contract Managed Building
30 Falstaff (Jane & 401)	April 2011	2.8 (6 wks: Mar-Apr 2011) Same data reported every week	1.9 (6 wks: Mar-Apr 2011) Same data reported every week	2.8 (5 wks: Apr-May 2011) Same data reported every week	1.9 (5 wks: Mar-Apr 2011) Same data reported every week
20 Falstaff (Jane & 401)	open	N/A No Data Reported	N/A No Data Reported	N/A No Data Reported	N/A No Data Reported
40 Falstaff (Jane & 401)	08-Apr-11	N/A No Data Reported	N/A No Data Reported	N/A No Data Reported	N/A No Data Reported

BUILDING ADDRESS	Date Recycling Room	Baseline Data		Post Recycing Room	
121 Humber (Weston & Rogers)	Feb 9, 2012	8.2 (18 wks Mar -Aug 2011)	1.5 (18 wks Mar -Aug 2011)	6.9 (6 wks Feb -Mar 2012)	4.0 (6 wks Feb -Mar 2012)
				8.9 (4 wks Jan 2012)	2.0 (4 wks Jan 2012)
2739 Victoria Park (Sheppard)	Feb-11	N/A	N/A	3.1 (12 wks: Mar-May 2011)	2.6 (10 wks: Jan-Mar 2012)
				3.1 (10 wks: Jan-Mar 2012)	2.6 (10 wks: Jan-Mar 2012)
2743 Victoria Park (Sheppard)	Feb-11	N/A	N/A	3.1 (12 wks: Mar-May 2011)	2.6 (10 wks: Jan-Mar 2012)
				3.1 (10 wks: Jan-Mar 2012)	2.6 (10 wks: Jan-Mar 2012)
7 Glamorgan (Kennedy & Ellesmere)	Opened Feb/Mar 2011 Tim Biron Guess	N/A	N/A	4.2 (9 wks: Mar-May 2011)	2.3 (9 wks: Mar-May 2011)
				4.4 (27 wks: Sep-Mar 2012)	4.1 (27 wks: Sep-Mar 2012)
400 McCowan (Eglinton E)	January 7th 2011	N/A	N/A	3.7 (25 wks: Sep-Mar 2012)	2.6 (25 wks: Sep-Mar 2012)
575 Adelaide	Jan 5, 2012 (but open briefly mid year)	N/A	N/A	N/A	2.3 (7 wks Jan -Feb 2012)
155 Sherbourne	Oct-11	N/A	N/A	N/A none reported	1.4 (10 wks: Jan-Mar 2012)
80 Blake (Gerrard & Pape)	Feb-11	N/A	N/A	3.2 (10 wks Mar-May 2011)	1.6 (10 wks Mar-May 2011)
10 Boultbee (Gerrard & Pape)	Feb. 7th, 2011	N/A	N/A	N/A none reported	9.5 (8 wks Mar-May 2011) Data probably included the townhouses (7 to 9 bins a week)?
855 Roselawn (Dufferin & Eglinton)	Early February 2011	N/A	N/A	1.2 (11 wks: Mar-May 2011)	1.5 (11 wks: Mar-May 2011)
				1.3 (21 wks: Sep-Jan 2012)	1.2 (21 wks: Sep-Jan 2012)
175 Cummer Ave (Yonge & Finch)	January 10th, 2011	N/A	N/A	1.3 (11 wks Mar-May 2011)	1.5 (10 wks Mar-May 2011)
				1.8 (28 wks Sep-Mar 2012)	1.5 (28 wks Sep-Mar 2012)
5430 Yonge Street	Jan 10th,	N/A	N/A	1.9 (11 wks Mar-May 2011)	1.6 (10 wks Mar-May 2011)

BUILDING ADDRESS	Date Recycling Room	Baseline Data		Post Recycing Room	
(Finch)	2011			0.8 (28 wks Sep-Mar 2012)	1.7 (27 wks Sep-Mar 2012)
49 Mabelle (Kipling & Bloor)	Mid January 2011	N/A No Data Reported	N/A No Data Reported	N/A No Data Reported	N/A No Data Reported
80 Danforth (DVP)	Oct 28, 2011	2.4 (7 wks Apr to May 2011)	1.2 (7 wks Apr to May 2011)	2.2 (11 wks Jan to Mar 2012)	1.2 (11 wks Jan to Mar 2012)
2999 Jane (Finch)	Pre March 2011	N/A	N/A	N/A No Data Reported	3.3 (1 wk: May 2011)
55 Greenbrae Circuit (Lawrence & Markham)	Not Opened	N/A Contract Managed Building	N/A Contract Managed Building	N/A Contract Managed Building	N/A Contract Managed Building
65 Greenbrae Circuit (Lawrence & Markham)	Not Opened	N/A Contract Managed Building	N/A Contract Managed Building	N/A Contract Managed Building	N/A Contract Managed Building

Appendix D

Detailed Comments From Workshops With Building Superintendants, 31st January and 2nd February, 2012

Comments made at the two workshops with superintendants are summarized in Section 8 of the report. This section presents more detailed comments by topic.

Compactors and Garbage

- Bins sometimes too heavy because waste is heavily compacted – Miller truck cannot lift the bin because it is too heavy and leave the bin behind (Reuben, 6250 Bathurst)
- Waste is heavily compacted and freezes in the bin in winter - maggots and slippery floor

Weighing Monitoring Program

- Tuesday is the recycling day at the building – Miller sometimes came on Tuesday during the weighing schedule
- First time set out empty bin but Miller did not weigh; second week the bin was weighed
- 80 Danforth – one garbage bin painted blue – only puts out one recycling bin – Miller weighted 2

Recycling Behaviour

- Having bins inside – big time difference. Outside bins were a magnet for illegal dumping
- 575 Adelaide – has cameras – can see people dumping recyclables in lobby – now fine tenants $50 and have the proof on camera
- One lady was fined $450 – says she does not care, her husband pays the rent
- 155 Sherbourne – most tenants do not recycling – the recycling goes in the garbage
- One building someone put fish in the recycling bin and it stank – tenants need to understand that they need to rinse containers
- People put large boxes (like mattress boxed) with bulky – superintendants sometimes cut the boxes up. Should ask TSE (tenant services coordinator) to tell tenants to cut up cardboard boxes.
- Cameras great but some tenants have hoodies and cannot be identified
- Some tenants put recyclables into the elevator, and kick them into the lobby when the elevator door opens
- Some tenants don't like recycling rooms in basement – nothing else down there – camera helps them to feel safe

Improvements to Recycling

- Storage space in apartments is an issue
- The more convenience, the better it will work
- Need chutes for recycling
- Training for tenants – they are still confused about what goes where

- Have a slide show on the LCD televisions in the lobby
- The posters are too big and cumbersome and take up too much space
- Reminder for new tenants
- Boys and girls club helps
- It is a social thing to recycle
- Try music and subliminal messages!
- For longest time, tenants were still going outside.
- Biggest issue for electronics – televisions don't fit in green electronics bin.

Promotion and Education and Tenant Involvement

- Some tenant reps handed out the bags and information brochures
- There used to be a tenant meeting every year – not happening anymore. About 6 staff and 15 tenants used to show up – not reaching many in family buildings, seniors buildings easier, particularly if you offer free coffee
- Had lobby intercept meeting – extra bags were available, a tenant representative was present.
- Had posters in lobby, laundry, basement. If he had more, he would have put them on each floor. (Lloyd)
- When a tenant moves into the building, they are given a recycling bag and recycling information
- Hard to believe how many people do not know about recycling – it has improved in last 5 years at TCHC
- Typed letters and added to elevators
- Animator would help a lot
- 575 Adelaide – put up posters and tenants were asking when recycling room was opening
- Bags great – Reuben market apartment # on each bag – now don't throw out
- Posters help
- Lots of homecare staff in seniors buildings- feel it is not their job to recycle
- Tenants in one building not interested in helping with recycling unless $ involved
- Posters don't stick to concrete walls
- Tenants tear down posters and bring back to their apartments

Recycling Room Technical Issues

- Narrow doorway – super has broken a few windows when moving bins around- Bin is wider and door is narrower than it should be (Frank)
- Have bin puller for regular garbage – use for recycling – bin puller has more control over bins
- 400 McCowan – bin fell apart just after September, 2011 – has one less bin for recycling, it fell apart during a lift
- There is a flap when you open the door – when you open the second door you can see everything (Nelson)
- Design of bin mover wrong – the bolt is rubbing against the tire (Mark Wong)
- If lid of recycling bin open, electrical panel and heating fan are in the way
- Slots in recycling bins – everything ends up on the floor

- Props lid open so that tenants can put recycling in the top (rather than through the slots) (Frank)
- Props lid fully open and keeps open (Dave)
- Hooks in ceiling would help – then you can keep the lid open with a chain
- One superintendant jumps in bins to flatten boxes – bigger boxes don't come out – some compression would be good
- Heating panel needs to be moved (Floyd)
- Handicapped button installed but not connected – one inside but none outside
- Need box for thermostat
- Exhaust fan needs to be on a timer
- Slots not friendly for seniors with walkers. Hangs lid on chain (Reuben) and uses old blue boxes and he empties them into the big bin a few times a day.
- Concern about pests (cockroaches) because indoors – monitor and treat indoors for pests each month.
- Pests worse problem before Green Bin – target 70% full, actually 25%
- Maybe have pushbutton in supers office so he can open door – Vincent has button in his office to open recycling room.
- Exhaust fan on timer – sucks heat out in winter

How to Improve Recycling

- Posters, picture posters work best
- Need promotional material translated
- Do not have internal access to office to look up recycling questions
- Tenant meetings needed again – property manager organizes them, lucky to get one per year; don't have budget to supply coffee
- Automated door in recycling room
- Light switch should be automated
- Animators would help a lot
- More signage and different languages
- Tenant meeting would help – two people at 175 Cummer willing to help
- Languages in the superintendants buildings – Chinese, Pharsi, Russian
- Need bigger and brighter signage so there is no parking by recycling room
- Cameras a good idea – shows room is under surveillance
- Auto door openers good
- Need a spare recycling bin in case they miss a pick-up
- With cameras – need sign to say area is under video surveillance
- Dedicated chutes are the way to go
  Paint recycling rooms in recycling colours – make them pleasant looking rooms

Recycling Rooms

- All recycling room bins are small and are full as soon as they are put out
- All tenants like recycling rooms because of convenience and the bins are not out in the cold
- Pictures and posters are good – all over the place

- City has website to different languages – City site has bedbug information. TCHC staff are able to access city website but not other websites at work
- 575 Adelaide – recycling room is on way to laundry room – has cameras in hallway and recycling room.
- 400 McCowan – Has 9 cameras already. People want more cameras – feel safe with more cameras. Can keep camera records for 3-9 months
- Being indoors is a huge advantage in winter
- Being indoors is a huge help in seniors buildings
- One recycling room is first floor, right by the elevator – it might not work at the end of the building
- Basement – better if it is near laundry room – more traffic
- 575 Adelaide – recycling room is near laundry room and rec room. Cant close laundry room – 24 hour operation because some tenants on shift work
- 400 McCowan – people fumble with keys – handicap button would be better – door stays open
- 121 Humber – cant open recycling bins – ceiling too low.
- Tenants don't flatten boxes – 9 boxes and bin is full or they leave them on the floor. Could resolve this by locking the top and using slots (others thought this was not a good idea)

Other Comments

- Krishna is new to 155 Sherbourne – no-one explained the recycling room project to him;
- 121 Humber- room still not opened as of 1st February, 2012. Waiting for electrical contractor. Miller a big problem – they were told to put blue bins out first, then garbage truck comes. When parking lot is fixed there will be more room but now the truck cant move so they are stuck with 3 full bins
- Boxes stay in chutes – don't make it to recycling room
- No kids in many buildings (adults, seniors) – kids train adults in how to recycle properly